

**SITE ASSESSMENT REPORT  
LEFTON IRON & METAL SITE  
EAST ST. LOUIS, ST. CLAIR COUNTY, ILLINOIS**

EPA Region 5 Records Ctr.



**345418**

Prepared for:

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
Region 5 Emergency Response Branch  
c/o Crab Orchard National Wildlife Refuge  
8588 Route 148  
Marion, IL 62959**

TDD No.:	S05-0108-036
Date Prepared:	21Dec 01
Contract No.:	68-W-00-129
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## Tetra Tech EM Inc.

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11  
12/21/01

21 Dec 01

Mr. Kevin Turner  
On-Scene Coordinator  
Emergency Response Branch  
U.S. Environmental Protection Agency Region 5  
c/o Crab Orchard National Wildlife Refuge  
8588 Route 148  
Marion, IL 62959

**Subject:        Site Assessment Report  
                 Lefton Iron & Metal Site  
                 East St. Louis, St. Clair County, Illinois  
                 Technical Direction Document No. S05-0108-036  
                 Tetra Tech Contract No. 68-W-00-129**

Dear Mr. Turner:

The Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START) is submitting the enclosed site assessment report for the Lefton Iron & Metal site in East St. Louis, Illinois. Due to the size of the data package it is not enclosed. A copy can be provided as directed by U.S. EPA.

If you have any questions or comments about the report or need additional copies, please contact Bryan L. Williams at (314) 892-6322, extension 24, or Thomas Kouris at (312) 946-6431.

Sincerely,

*Bryan L. Williams*

*for Jennifer Mueller*

Jennifer Mueller  
START Project Member

Enclosure

cc:        Lorraine Kosik, U.S. EPA START Program Officer  
            Thomas Kouris, Tetra Tech START Program Manager



## 1.0 INTRODUCTION

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The Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (U.S. EPA) under Technical Direction Document (TDD) No. S05-0108-036 to perform a site assessment at the Lefton Iron & Metal (Lefton) site in East St. Louis, St. Clair County, Illinois. START was assigned to compile available site information, develop a site safety plan, perform a site inspection, procure a backhoe and operator to excavate pits at the site, collect soil samples, procure an analytical laboratory for the samples, conduct analytical data validation, photograph site conditions and activities (see Appendix A), provide a written log documenting all on-site activities, evaluate potential threats to human health and the environment, and prepare this site assessment report.

The site assessment was performed in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Title 40 of the *Code of Federal Regulations* (CFR), Section 300.415, paragraph (b)(2), to evaluate on-site conditions and possible site-related threats to human health, welfare, and the environment. This report discusses the site background, site assessment activities, sampling activities, analytical results, and potential site-related threats, and provides a summary of the assessment. Appendix A provides a photographic log of site conditions and activities, Appendix B contains a data validation report and validated analytical results for soil samples collected during the site assessment, and Appendix C provides a list of witnesses present during site assessment activities.

## 2.0 SITE BACKGROUND

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The site description and history of the Lefton site are discussed below.

### 2.1 SITE DESCRIPTION

The Lefton site consists of two parcels associated with the former Lefton Iron & Metal scrap salvage facility in East St. Louis, St. Clair County, Illinois (see Figure 1). These parcels of the former metal scrap yard consist of the main Lefton scrap yard (Yard 1) and the Lefton storage scrap yard (Yard 2). Yard 1 is located northwest of Yard 2 (see Figure 2), and both yards are located in a mixed residential and industrial community within the city boundaries of East St. Louis, Illinois. Each yard is described in more detail below.

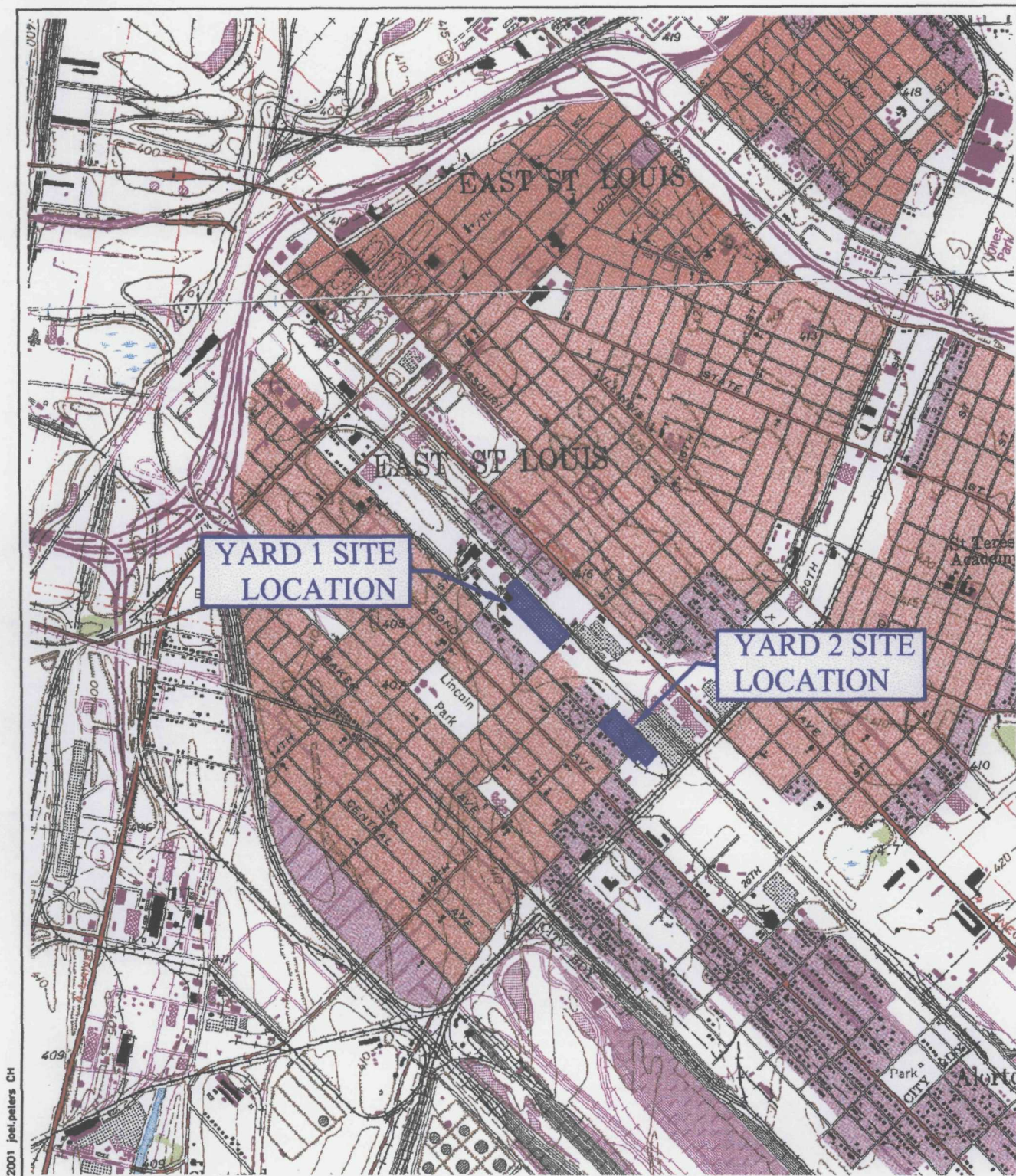
#### YARD 1

Yard 1 is located at 205 South 17<sup>th</sup> Street in East St. Louis, Illinois. The geographical coordinates of Yard 1 are latitude 38° 37' 01" North and longitude 90° 09' 16" West. Yard 1 is bordered by railroad tracks to the northeast, 17<sup>th</sup> Street to the southeast, Brady Avenue to the southwest, and a commercial business to the northwest.

Yard 1 was used as a metal scrap yard by local industries as well as to store scrap metal transported to the site by railroad cars. The yard measures about 540 by 720 feet, with a cutout section from the property on the Northwest corner, and occupies approximately 353,160 square feet. The yard is enclosed by a chain-link fence. There are three breaches in the fence that allow site access to trespassers. All of the breaches are located in the western portion of the parcel. One breach is located about midway along the southwestern fenceline, and another breach is located on the far southwestern fenceline. The last breach is located near the farthest northwestern corner on the southwestern fenceline that cuts into Yard 1.

A large shed with a collapsed roof is located in the east corner of the parcel. A paved area and weigh scale are located southwest of the shed. The site office building is located southwest of the weigh scale near the southeast fenceline. The railroad tracks run southwest of the office building. Two gated entrances are located along the southeast fenceline, one northeast of the railroad tracks that opens to the weigh scale and paved area and another midway between the southwest fenceline and the railroad tracks.





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SCALE IN FEET



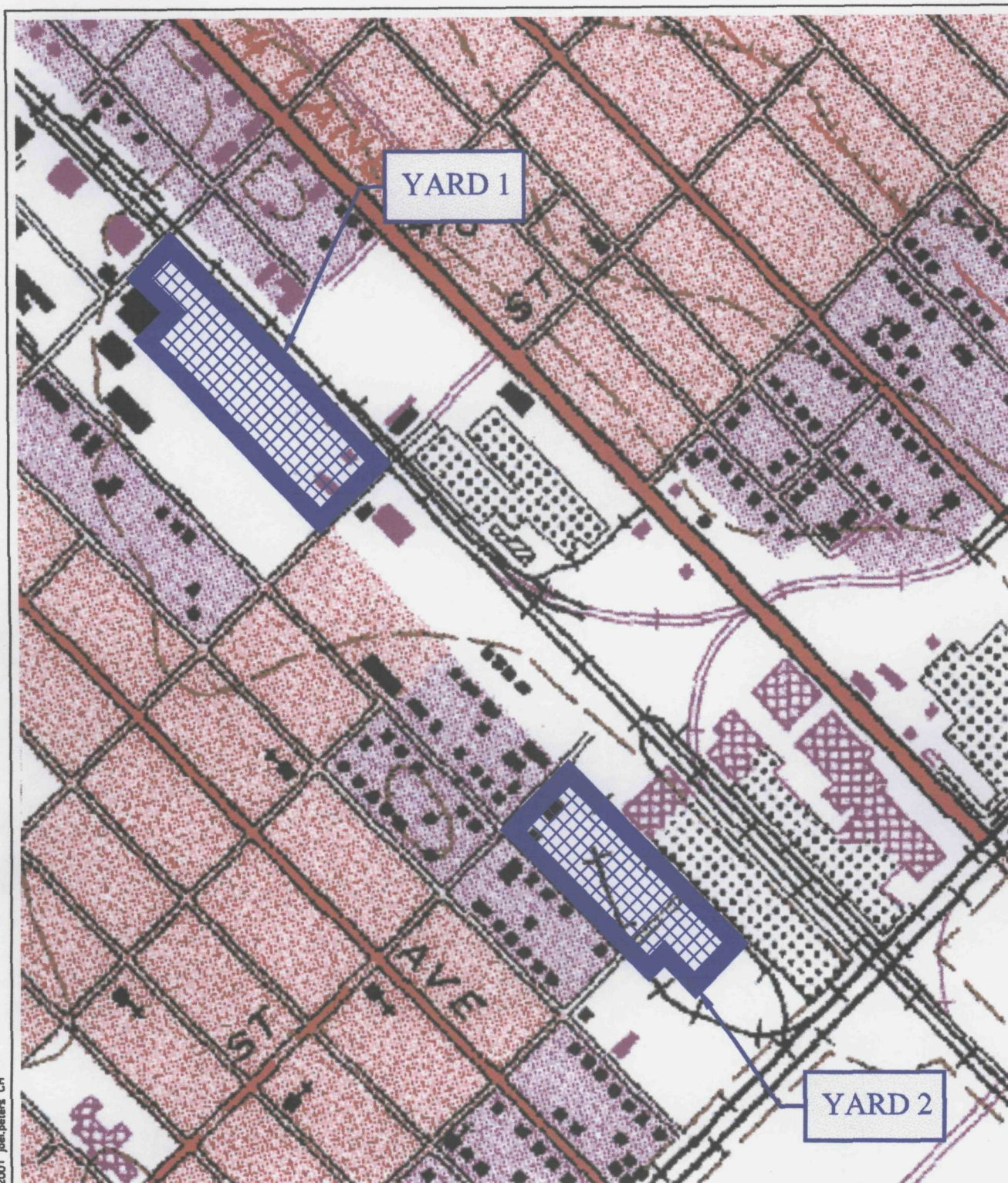
SOURCE: MODIFIED FROM USGS, GRANITE CITY AND CAHOKIA, ILLINOIS-MISSOURI QUADRANGLES, 1954, PHOTOREVISED 1993.

LEFTON IRON AND METAL SITE  
EAST ST. LOUIS, ST. CLAIR COUNTY, ILLINOIS  
TDD NO. S05-0108-036

FIGURE 1  
SITE LOCATION MAP

 Tetra Tech EM Inc.





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0 250 500  
SCALE IN FEET



SOURCE: MODIFIED FROM USGS, GRANITE CITY  
AND CAHOKIA, ILLINOIS-MISSOURI QUADRANGLES,  
1954, PHOTOREVISED 1993.

LEFTON IRON AND METAL SITE  
EAST ST. LOUIS, ST. CLAIR COUNTY, ILLINOIS  
TDD NO. S05-0108-036

FIGURE 2  
SITE LAYOUT MAP

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*Scrap pile in Yard 1*

START observed large piles of scrap and metal debris throughout the entire yard and three smaller buildings in the central portion of the parcel that housed pieces of equipment such as generators and heating and cooling equipment (Buildings 1 through 3). In addition, START observed transformer poles with fallen transformers near the buildings and an underground storage tank (UST) located along the northeastern fenceline.

## **YARD 2**

Yard 2 is located at 1901 South Converse Street in East St. Louis, Illinois. The geographical coordinates of Yard 1 are latitude 38° 37' 01" North and longitude 90° 09' 16" West. Yard 2 is bordered by Brady Avenue to the northeast, 19<sup>th</sup> Street to the northwest, residential area across Converse Avenue to the southwest, and railroad tracks southeast of the property.

Yard 2 was used to store scrap and metal debris from Yard 1. The entire yard is enclosed by a chain-link fence. The parcel measures about 405 by 720 feet, occupies approximately 273,700 square feet with the south corner cutting into the parcel. There are no breaches in the fence. Two sets of railroad tracks run through the yard, one set from the north fenceline near the north corner of the yard to the southwest fenceline near the southwesternmost corner. Gated entrances are located along the northeast and southwest fencelines where the railroad tracks cross the interior of the parcel. The second set of tracks

runs from the northeast fenceline east of the first set of tracks to the southeastern corner of the yard on the southeastern fenceline.

A small office building is located along the northwestern fenceline. Southwest of the building is a paved area, a weigh scale and gated entrance along the northwest fenceline near the southwest corner of the yard. START observed large piles of scrap and metal debris throughout the entire yard. In addition, START observed a pile of propane tanks, a fenced-in oxygen gas tank, and a small shed at Yard 2.



*Scrap piles in Yard 2*

## **2.2 SITE HISTORY**

The Lefton site is a former metal scrap yard. Complaints had been filed about the site concerning the presence of polychlorinated biphenyls (PCB). The Illinois Environmental Protection Agency (IEPA) obtained access to and performed soil sampling activities at Yard 1 of the Lefton site. Sampling results revealed the presence of elevated levels of PCBs at concentrations above 50 milligrams per kilogram (mg/kg). IEPA was unable to obtain access to Yard 2 and requested U.S. EPA's assistance at the Lefton site. The Illinois Department of Public Health (IDPH) also performed soil sampling activities and documented elevated lead levels at the Lefton site at greater than 5,000 parts per million (ppm) at the surface and greater than 400 ppm at a depth of 6 inches.

A total of 510 residents are located within the block group of the site. This population is classified as block group 5 in census tract 5009 according to the Region 5 Superfund Environmental Justice Analysis. The entire population in this block group is classified as minority. Within this block group, approximately 73 percent of the residents have an income less than the established state low income level. Therefore, these conditions indicate an environmental justice priority for the community.

On 11 through 13 Sep 01, U.S. EPA On-Scene Coordinator (OSC) Kevin Turner, START, and Project Resources, Inc. (PRI), conducted a site assessment at the Lefton site. Site assessment activities are discussed in Section 3.0.



### 3.0 SITE ASSESSMENT ACTIVITIES

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START was tasked to perform site assessment activities that included a site reconnaissance and excavation and sampling activities. Each activity is discussed below.

#### 3.1 SITE RECONNAISSANCE

At approximately 1000 on 11 Sep 01, START members Bryan L. Williams and Jennifer Mueller; U.S. EPA OSC Turner; U.S. EPA representatives William Ryczek and Joe Kawiecki; Environmental Restoration (ER) operator Ricky Johnson; and PRI representatives John Vrenick and James Sheehan arrived at Yard 1. U.S. EPA field technician Keith Lesniak arrived on site at 1215. U.S. EPA and START then conducted a reconnaissance of Yards 1 and 2 on 11 through 13 Sep 01. U.S. EPA and START conducted radiation and photoionization detector (PID) monitoring during the site reconnaissance; determined locations for pit excavation, x-ray fluorescence (XRF) screening, and soil sampling activities at each yard; and generated site maps of each yard. Specific activities at each yard are discussed below.

#### YARD 1

At 1045 on 11 Sep 01, U.S. EPA and START began the site reconnaissance at Yard 1. START observed large piles of scrap and metal debris throughout the entire yard and three smaller buildings (Buildings 1 through 3) near the center of the yard that housed pieces of equipment such as heating and cooling equipment and hydraulic equipment. Building 1 is located near the center of the yard southwest of the railroad tracks and appeared to have housed hydraulic equipment. START observed Transformer Pole 1 with a fallen transformer near the southeast corner of the building. An area of black stained soil was observed southeast of the building. A large pile of spray cans, mostly insect repellent, was located between the northeast side of the building and the railroad tracks.

Building 2 is located northeast of Building 1 on the northeast side of the railroad tracks. This building contained hydraulic equipment and is adjacent to a crusher near the southwest corner of the building. A small lagoon was observed southwest of the building as well as an area of black stained soil southeast of the building. Transformer Pole 2 with a fallen transformer was observed southeast of Building 2. Building 3 is northeast of Building 2 near the northern fenceline. Building 3 appeared to be a storage building. Transformer Pole 3 with a fallen transformer was located southeast of Building 3. Black stained



soil was observed near the pole. In addition, START observed an UST southeast of Building 3 along the northeast fenceline. Pit excavation was performed to the southwest near the UST to assess the quality and characteristics of the soil near the UST and to determine if substances from the UST had leaked into the soil. A small amount of automobile fluff material was also observed near pit excavations in the northwest corner of Yard 1.

At 1145, pit excavation, XRF screening, and soil sampling began. These activities are discussed in Section 3.2. START documented Yard 1 activities with photographs (see Appendix A) and written log notes. Air monitoring using the PID did not indicate volatile organic compound concentrations above background limits. In addition, the radiation monitor did not show radiological readings above background levels.

Site assessment activities continued at 0800 on 12 Sep 01. At approximately 0815 hours, START and U.S. EPA field technician Lesniak scoped the perimeter of Yard 1. Three breaches were discovered in the chain-link fence that surrounds the yard. All of the breaches are located in the western half of Yard 1. One breach is located on the northern fenceline, and another breach is located on the far southern fenceline. The last breach is located near the farthest western corner on the southern fenceline that cuts into Yard 1. At approximately 0930, a trespasser was discovered at Yard 1 and was asked to leave the site. He had been using a wheelbarrow, bucket, and pick for scrapping activities.

## **YARD 2**

At approximately 1100 on 12 Sep 01, U.S. EPA OSC Turner and START began the site reconnaissance at Yard 2. START observed large piles of scrap and metal debris throughout the entire parcel. A small office building was located in the northwestern portion of Yard 2 near the gated entrance along the northwest fenceline. The building housed numerous documents pertaining to the Lefton site. A small shed is located in the north-central portion of the yard between the two sets of railroad tracks. Black stained soil was observed southeast of the shed. A battery was also observed near the northeastern corner of the shed. In addition, START observed a pile of propane tanks and a fenced-in oxygen storage tank near the southern end of the northeastern fenceline near the eastern corner of the yard.

At 1400, pit excavation by ER operator Johnson, XRF screening by PRI representative Sheehan, and soil sampling by START began. These activities are discussed in Section 3.2. No breaches were found in the



chain-link fence that surrounds the yard. START documented Yard 2 activities with photographs (see Appendix A) and written log notes. Radiation monitoring did not show radiological readings above background levels.

Site assessment activities continued at 0830 on 13 Sep 01 with pit excavation by ER operator Johnson, XRF screening by PRI representative Sheehan, and soil sampling by START. The site assessment of both yards at the Lefton site was completed at 1100 on 13 Sep 01.

### **3.2 EXCAVATION AND SAMPLING ACTIVITIES**







In order to evaluate whether or not a threat to human health or the environment existed, pit excavation, XRF screening, and soil sampling were conducted. At Yards 1 and 2, a total of 27 pits were excavated, 118 locations were screened with an XRF, and 21 soil samples were collected. START sampled soil at potentially sensitive areas specified by U.S. EPA OSC Turner and marked the sampled areas with survey flags. Activities at each yard are discussed below.

#### **YARD 1**

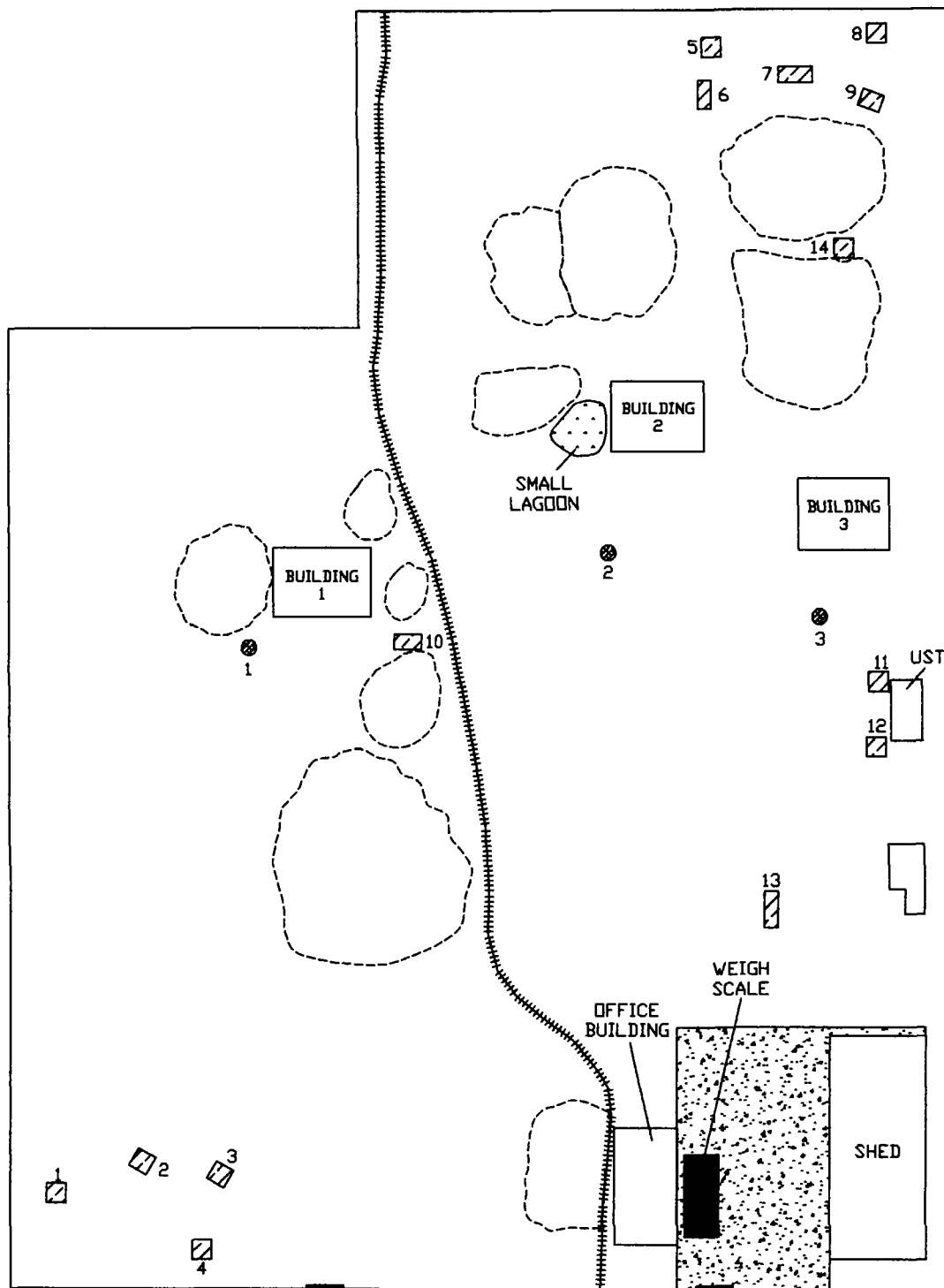
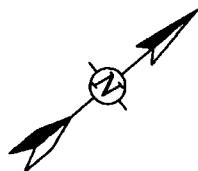
Pit excavation, XRF screening, and soil sampling locations at Yard 1 are indicated in Figures 3 through 5. At Yard 1, 14 pits were excavated, 74 locations were screened with an XRF, and 15 soil samples were collected. ER operator Johnson operated the backhoe to excavate pits under the direction of U.S. EPA OSC Turner, who determined the locations for pit excavation. Pits were generally excavated to a depth of 4 to 6 feet below ground surface (bgs), with several pits reaching depths of up to 12 feet bgs. The pits were excavated to assess the quality and characteristics of soil and to determine locations for further sampling and removal activities. XRF screening was performed by PRI representative Sheehan at each excavation to determine which locations should be sampled. XRF screening was also performed throughout the entire yard in a rough grid pattern to determine locations of high contaminant concentrations for sampling and analysis. Table 1 summarizes XRF screening results.

START collected soil samples S1 through S14 in Level D personal protective equipment using dedicated sampling equipment (See Figure 5). The collected samples were placed in sample jars and submitted for laboratory analysis based on the judgment of U.S. EPA OSC Turner and XRF field screening results. Sample descriptions are presented in Table 2.

G9009-L0108036 LEFTON-17/HSTREET-PITEXCAVATIONS.DWG GAS 12/17/01

-  PIT EXCAVATION
-  PAVED AREA
-  SCRAP METAL PILE
-  TRANSFORMER POLE
-  RAILROAD TRACKS
-  GATED ENTRANCE

NOT TO SCALE










LEFTON IRON & METAL SITE  
EAST ST. LOUIS,  
ST. CLAIR COUNTY, ILLINOIS  
TDD NO. S05-0108-036

FIGURE 3  
YARD 1 PIT EXCAVATIONS

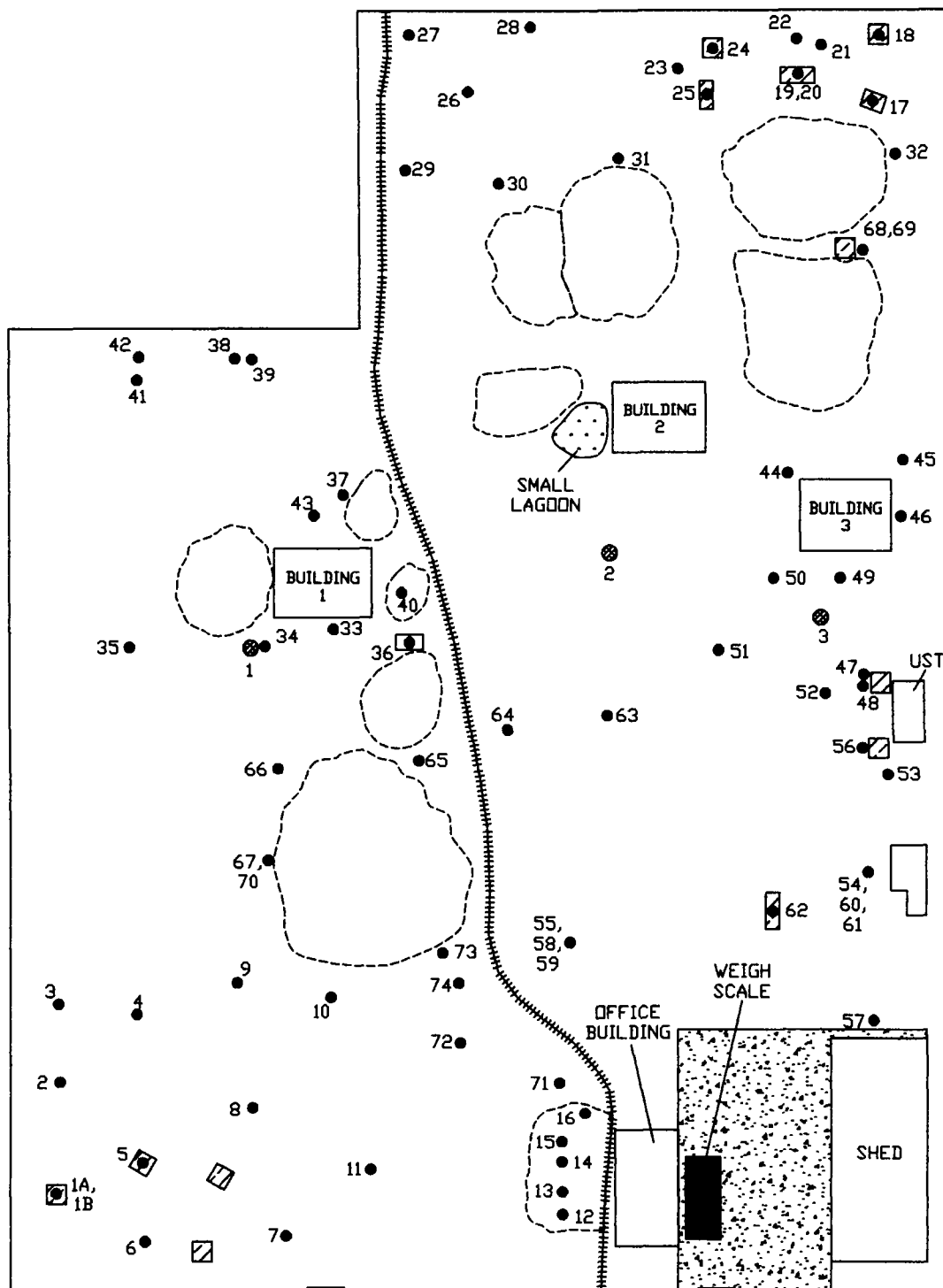
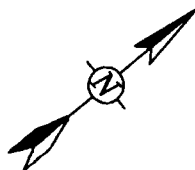


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G9009-L0108036 LEFTON-17TH STREET-XRF DATA.DWG GAS 12/17/01

-  PIT EXCAVATION
-  PAVED AREA
-  SCRAP METAL PILE
-  TRANSFORMER POLE
-  RAILROAD TRACKS
-  GATED ENTRANCE
-  XRF SCREENING LOCATION

NOT TO SCALE










LEFTON IRON & METAL SITE  
EAST ST. LOUIS,  
ST. CLAIR COUNTY, ILLINOIS  
TDD NO. S05-0108-036

FIGURE 4  
YARD 1 XRF SCREENING LOCATIONS

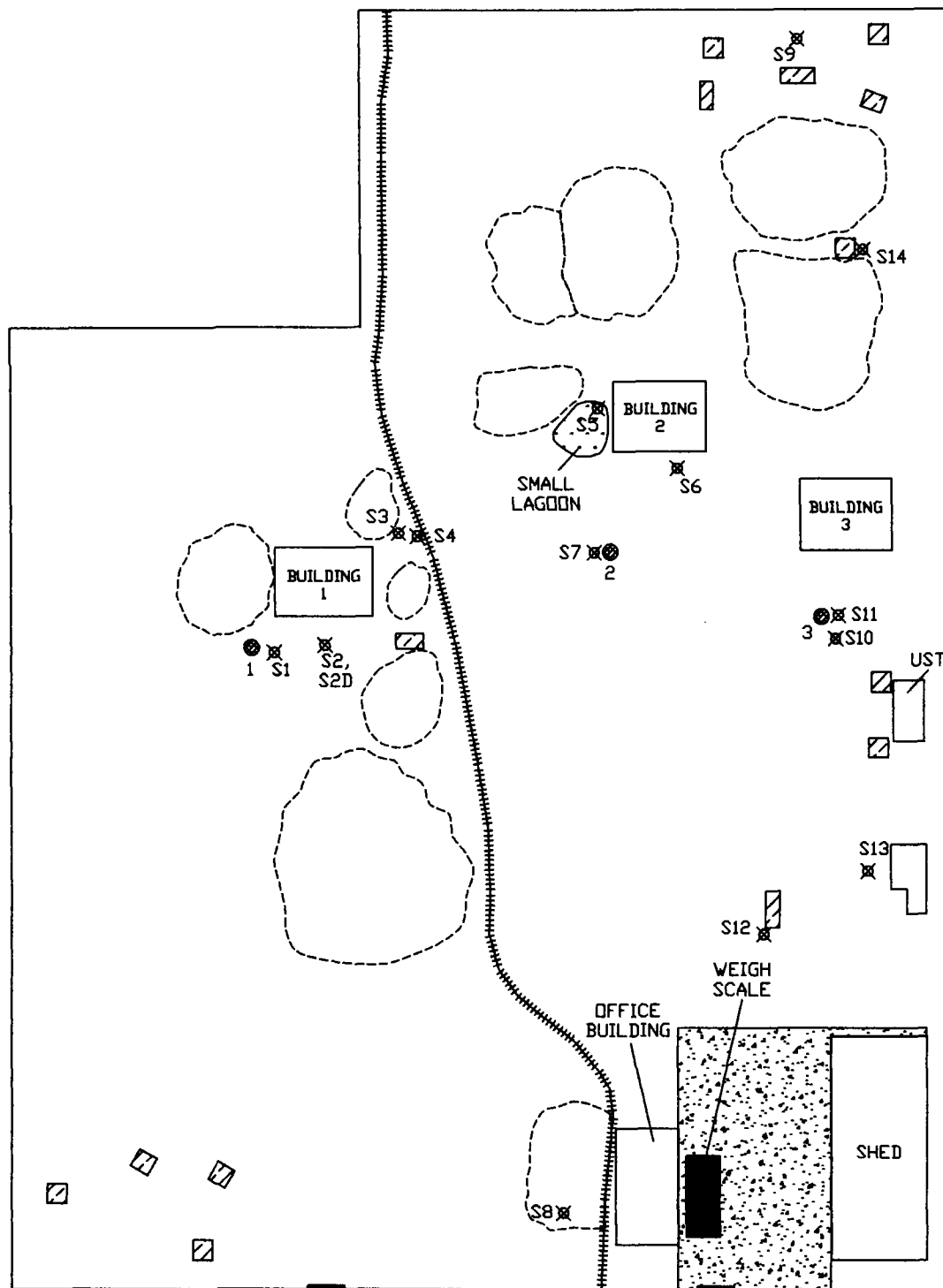
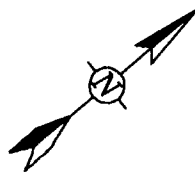


Tetra Tech EM Inc.

G9009-L0108036 LEFTON-17THSTREET-SOILSAMPLELOCATIONS.DWG GAS 12/17/01

-  PIT EXCAVATION
-  PAVED AREA
-  SCRAP METAL PILE
-  TRANSFORMER POLE
-  RAILROAD TRACKS
-  GATED ENTRANCE
-  SOIL SAMPLING LOCATION

NOT TO SCALE



LEFTON IRON & METAL SITE  
EAST ST. LOUIS,  
ST. CLAIR COUNTY, ILLINOIS  
TDD NO. S05-0108-036

FIGURE 5  
YARD 1 SOIL SAMPLING LOCATIONS



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TABLE 1

## YARD 1 XRF SCREENING RESULTS

Location	Description	Concentration Detected (ppm)														
		Fe	Zn	Pb	Cu	Cr	Hg	Sr	Zr	As	Mn	Co	Mo	Ni	Rb	
1a	Depth = 4 feet bgs	32,300	478	117	ND	ND	ND	75.0	92.6	ND	ND	ND	ND	ND	ND	
1b	Surface	64,000	5,080	1,460	1,140	ND	ND	112	64.6	ND	ND	ND	ND	ND	ND	
2	Surface	85,700	3,940	518	4,240	5,720	1,010	132	ND	ND	ND	ND	ND	ND	ND	
3	Surface	93,300	3,010	1,030	2,110	ND	ND	117	ND	ND	ND	ND	ND	ND	ND	
4	Surface	149,000	5,090	1,430	1,060	ND	ND	62.6	3,090	ND	ND	ND	ND	ND	ND	
5	Surface	46,100	1,280	369	ND	2,130	ND	171	ND	ND	ND	ND	ND	ND	ND	
6	Surface	47,600	1,580	812	ND	ND	ND	175	ND	ND	ND	ND	ND	ND	ND	
7	Surface	27,100	8,500	ND	15,300	3,880	3,240	ND	ND	ND	ND	ND	ND	ND	ND	
8	Surface	61,000	2,930	942	ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND	
9	Surface	99,500	6,620	991	ND	ND	ND	46	ND	ND	ND	ND	ND	ND	ND	
10	Surface	188,000	8,350	850	7,010	3,810	1,520	71.5	ND	ND	ND	ND	ND	ND	ND	
11	Surface	41,900	1,420	459	ND	1,700	ND	147	ND	ND	ND	ND	ND	ND	ND	
12	Surface	91,800	7,100	915	6,820	ND	ND	86.5	ND	ND	ND	ND	ND	ND	ND	
13	Surface	98,700	10,000	5,380	7,510	2,950	485	98.8	ND	652	ND	ND	ND	ND	ND	
14	Surface	154,000	7,000	1,930	5,410	3,510	705	92.1	66.4	ND	ND	69.9	ND	ND	ND	
15	Surface	85,500	6,160	2,770	6,980	ND	718	ND	ND	ND	ND	ND	ND	ND	ND	
16	Surface	102,000	6,300	1,090	6,570	4,120	1,120	82.5	32.1	ND	ND	ND	ND	ND	ND	
17	Depth = 4 feet bgs	176,000	1,410	828	952	ND	ND	105	83.9	ND	18,800	ND	ND	ND	ND	
18	Depth = 4 feet bgs	109,000	1,480	1,270	ND	ND	ND	70.6	107	281	ND	ND	ND	ND	ND	
19	Surface	16,800	646	350	ND	ND	ND	34.7	ND	181	ND	ND	ND	ND	ND	
20	Same location as 19 at 12 feet bgs	155,000	5,290	1,890	ND	ND	ND	65	46.3	349	ND	4,650	ND	ND	ND	
21	Surface	119,000	8,570	6,090	1,360	ND	ND	148	56.1	ND	ND	ND	ND	ND	ND	
22	Surface	286,000	15,200	20,600	2,040	5,020	ND	393	ND	ND	ND	ND	ND	ND	ND	
23	Surface	99,000	6,160	4,480	1,030	ND	ND	135	ND	ND	ND	49.4	ND	ND	ND	
24	Depth = 2 feet bgs	193,000	8,660	12,000	3,650	ND	ND	132	ND	ND	ND	ND	ND	ND	ND	
25	Depth = 2 feet bgs	181,000	16,300	3,830	2,610	ND	ND	111	78.9	ND	ND	ND	ND	ND	ND	
26	Surface	352,000	8,760	2,680	1,780	ND	ND	101	102	ND	ND	158	ND	ND	ND	
27	Surface	29,900	9,020	2,010	6,000	ND	735	ND	102	854	ND	84.5	ND	ND	ND	
28	Surface	301,000	15,600	6,400	16,400	ND	1,760	ND	336	ND	ND	272	ND	ND	ND	
29	Surface	403,000	5,950	2,770	3,280	ND	ND	ND	93	ND	ND	231	ND	ND	ND	
30	Surface	344,000	16,600	3,730	17,100	6,010	2,770	ND	97.4	ND	ND	131	ND	ND	ND	

TABLE 1 (Continued)

## YARD 1 XRF SCREENING RESULTS

Location	Description	Concentration Detected (ppm)													
		Fe	Zn	Pb	Cu	Cr	Hg	Sr	Zr	As	Mn	Co	Mo	Ni	Rb
31	Surface	534,000	7,240	3,550	ND	ND	ND	ND	70.8	ND	ND	ND	ND	ND	ND
32	Surface	355,000	9,620	5,780	1,950	ND	ND	125	112	ND	ND	80.2	ND	ND	ND
33	Surface	163,000	11,300	1,360	2,000	1,990	ND	121	69.4	241	ND	53.1	ND	ND	ND
34	Surface	160,000	15,300	2,140	10,700	ND	1,900	ND	86.9	ND	ND	ND	ND	ND	ND
35	Surface	87,700	1,820	311	1,510	2,810	249	109	101	ND	ND	ND	ND	ND	ND
36	Surface	164,000	8,340	1,800	1,290	ND	ND	69.6	215	ND	ND	273	1510	ND	ND
37	Surface	218,000	8,660	1,320	3,290	6,750	409	106	133	ND	ND	61.3	ND	ND	ND
38	Surface	201,000	11,100	2,890	5,400	ND	ND	56.1	116	486	ND	ND	ND	ND	ND
39	Surface	222,000	17,700	3,010	2,220	ND	ND	125	93.5	274	ND	ND	ND	ND	ND
40	Surface	188,000	3,990	1,360	1,160	ND	ND	289	ND	ND	ND	76.2	ND	ND	ND
41	Surface	1,940,000	ND	ND	2,660	ND	ND	ND	ND	ND	ND	268	ND	ND	ND
42	Surface	104,000	1,060	670	ND	ND	ND	157	54.5	ND	ND	ND	ND	ND	ND
43	Surface	271,000	15,000	1,820	11,900	4,660	1,730	ND	ND	ND	ND	69	ND	ND	ND
44	Surface	150,000	11,000	866	8,770	5,630	1,560	ND	ND	ND	ND	92	ND	ND	ND
45	Surface	128,000	9,660	1,750	1,590	ND	ND	183	ND	ND	ND	ND	ND	ND	ND
46	Surface	106,000	6,870	1,300	5,670	3,930	941	73.4	64.5	ND	ND	73.1	ND	ND	ND
47	Depth = 4 feet bgs	106,000	308	ND	ND	ND	ND	39.2	88.1	ND	ND	ND	ND	ND	ND
48	Depth = 4 feet bgs	140,000	3,150	965	ND	ND	ND	83.2	65.7	ND	ND	ND	ND	ND	ND
49	Surface	140,000	3,150	965	ND	ND	ND	83.2	65.7	ND	ND	ND	ND	ND	ND
50	Surface	140,000	6,960	2,260	ND	ND	ND	95.8	57.1	ND	ND	64.4	ND	ND	ND
51	Surface	98,300	4,040	1,770	ND	2,210	ND	161	40.3	ND	ND	56.6	ND	ND	ND
52	Surface	989,000	ND	ND	ND	201,000	ND	ND	ND	ND	ND	1,660	47,200	ND	ND
53	Surface	59,700	6,430	788	6,470	3,500	1,370	ND	ND	ND	ND	ND	ND	ND	ND
54	Surface	111,000	26,100	ND	41,700	6,740	8,970	ND	101	ND	ND	7,600	ND	ND	ND
55	Surface	57,600	17,700	ND	29,100	5,920	6,690	ND	ND	ND	ND	4,490	ND	ND	ND
56	Surface	9,520	142	ND	ND	ND	ND	125	77.4	ND	ND	ND	ND	ND	ND
57	Surface	75,400	3,930	861	1,950	2,620	262	106	ND	ND	ND	ND	46.8	ND	ND
58	Same location as 55 at 1 foot bgs	156,000	2,940	1,480	2,210	ND	ND	117	81.3	ND	ND	ND	ND	ND	ND
59	Same location as 55 at surface	49,200	1,690	538	ND	1,470	ND	93	ND	ND	ND	ND	ND	ND	ND

TABLE 1 (Continued)

## YARD 1 XRF SCREENING RESULTS

Location	Description	Concentration Detected (ppm)													
		Fe	Zn	Pb	Cu	Cr	Hg	Sr	Zr	As	Mn	Co	Mo	Ni	Rb
60	Same location as 54 at 10 inches bgs	138,000	7,100	2,190	2,790	ND	ND	89.5	146	497	ND	ND	59.6	ND	ND
61	Same location as 54 at surface	104,000	6,040	765	5,050	4,610	1,070	122.0	49.2	ND	ND	ND	46.6	ND	ND
62	Depth = 6 feet bgs	38,600	285	298	396	ND	ND	65.4	82.9	ND	ND	ND	ND	ND	ND
63	Surface	143,000	4,040	5,150	ND	3,170	ND	135	ND	ND	ND	ND	55.8	ND	ND
64	Surface	279,000	9,430	1,920	10,600	5,390	1,760	ND	ND	ND	ND	ND	ND	ND	ND
65	Surface	107,000	8,650	1,540	ND	ND	ND	82.4	61.3	ND	ND	ND	33.9	ND	ND
66	Surface	269,000	11,400	1,940	2,040	ND	ND	90.9	ND	ND	ND	ND	78.7	ND	ND
67	Surface	561,000	ND	ND	ND	12,200	ND	ND	ND	ND	ND	28,600	ND	ND	ND
68	Surface of black soil	98,800	3,980	1,560	882	ND	ND	139	51.7	ND	ND	ND	ND	ND	ND
69	Same location as 68 of surface grey soil	75,900	2,400	794	ND	ND	ND	98.6	83.4	ND	ND	ND	ND	ND	212
70	Rescreening at 67	375,000	546	ND	ND	8,040	ND	ND	ND	ND	ND	37,800	ND	ND	ND
71	Surface	126,000	3,750	777	ND	ND	ND	163	ND	ND	ND	ND	ND	ND	ND
72	Surface	122,000	5,010	2,070	7,540	3,270	ND	132	ND	ND	ND	ND	ND	ND	ND
73	Surface	198,000	8,500	8,880	25,300	ND	ND	72.9	ND	802	ND	50.2	ND	ND	ND
74	Surface	52,900	6,710	1,510	1,020	ND	ND	82	ND	ND	ND	22.9	ND	ND	ND

Notes:

As	=	Arsenic	ND	=	Not detected
bgs	=	Below ground surface	Ni	=	Nickel
Co	=	Cobalt	Pb	=	Lead
Cr	=	Chromium	ppm	=	Part per million
Cu	=	Copper	Rb	=	Rubidium
Fe	=	Iron	Sr	=	Strontium
Hg	=	Mercury	Zn	=	Zinc
Mn	=	Manganese	Zr	=	Zirconium
Mo	=	Molybdenum		=	



Tetra Tech EM Inc.



**TABLE 2****YARD 1 SOIL SAMPLE DESCRIPTIONS**

Sample No.	Date	Time	Description
S1	11 Sep 01	1415	Black stained soil northeast of Transformer Pole 1
S2	11 Sep 01	1420	Black stained soil southeast of Building 1
S2D	11 Sep 01	1420	Duplicate of Sample No. S2
S3	11 Sep 01	1432	Lowest point near northeast edge of the pile of insect repellent spray cans to be analyzed for pesticides
S4	11 Sep 01	1437	Sludge on the southwest side of the railroad tracks just northeast of Sample No. S3
S5	11 Sep 01	1442	Sludge on the northern edge of lagoon near Building 2
S6	11 Sep 01	1450	Black stained soil on the southeast side of Building 2
S7	11 Sep 01	1521	Southwest of Transformer Pole 2
S8	11 Sep 01	1529	Scrap pile (assumed to be aluminum scrap) located southwest of office building
S9	11 Sep 01	1535	Fluff material located near north corner of Yard 1
S10	12 Sep 01	0910	Black stained soil east of Transformer Pole 3
S11	12 Sep 01	0913	Black stained soil northeast of Transformer Pole 3
S12	12 Sep 01	0945	Sample collected because of high chromium XRF screening concentration nearby
S13	12 Sep 01	0952	Sample collected because of high mercury XRF screening concentration nearby
S14	12 Sep 01	1045	Sample collected from beneath large scrap pile south of north corner of yard (pit 14)








## YARD 2

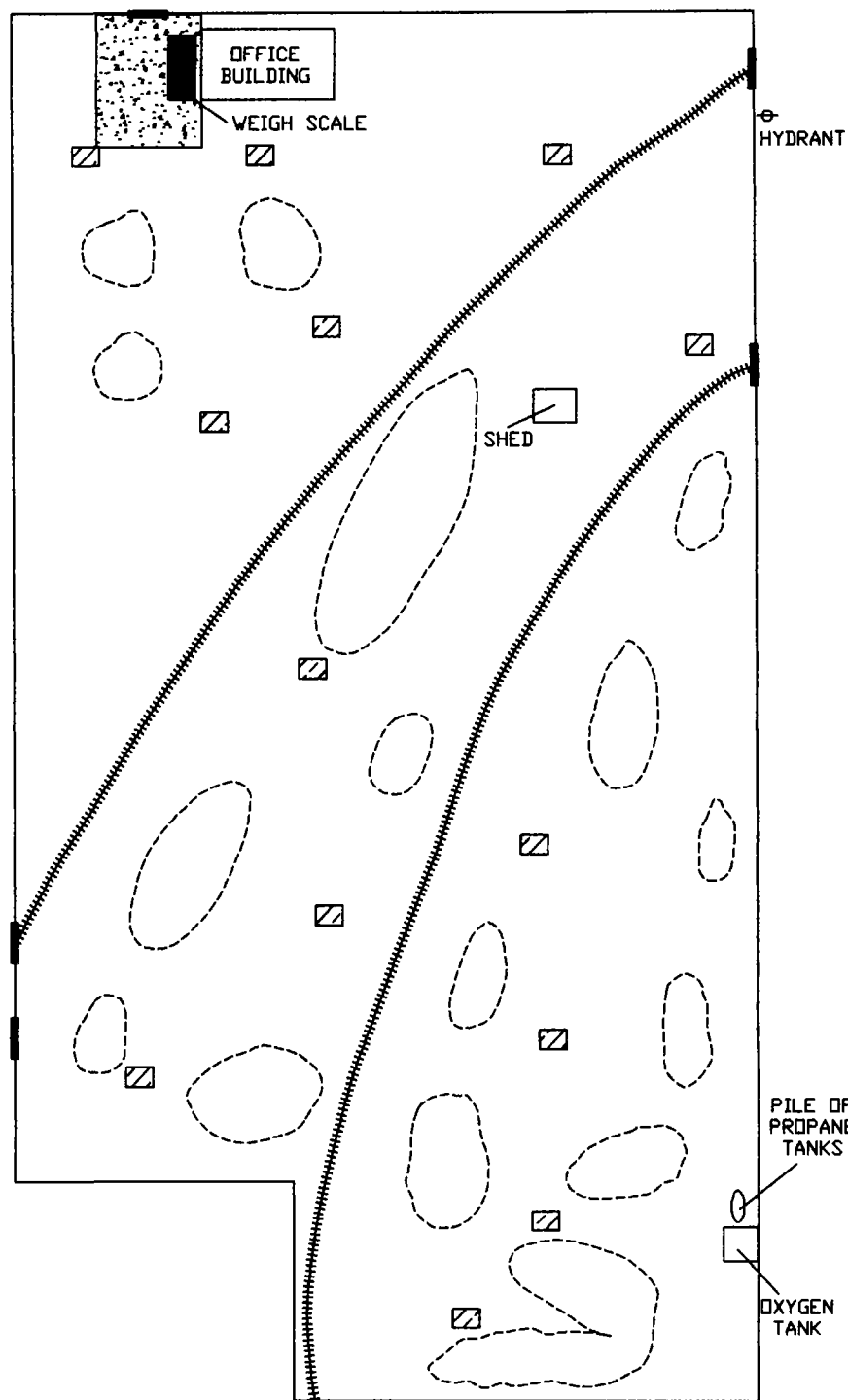
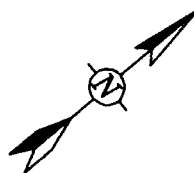
Pit excavation, XRF screening, and soil sampling locations at Yard 2 are shown in Figures 6 through 8. At Yard 2, 13 pits were excavated, 44 locations were screened with an XRF, and 6 soil samples were collected. ER operator Johnson operated the backhoe to excavate pits under the direction of U.S. EPA OSC Turner, who determined the locations for pit excavation. Pits were generally excavated to a depth of 4 to 6 feet bgs, with several pits reaching up to 8 feet bgs. The pits were excavated to assess the quality and characteristics of soil and to determine locations for further sampling and removal activities. XRF screening was performed by PRI representative Sheehan at each pit excavation to determine which locations should be sampled. XRF screening was also performed throughout the entire yard in a rough grid pattern to determine locations of high contaminant concentrations for sampling and analysis. Table 3 summarizes XRF screening results.

START collected soil samples S15 through S19 in Level D personal protective equipment using dedicated sampling equipment (see Figure 8). The collected samples were placed in sample jars and submitted for laboratory analysis based on the judgment of U.S. EPA OSC Turner and XRF field screening results. Sample descriptions are presented in Table 4.

G9009-L0108036 LEFTON-CONVERSE STREET-PIT EXCAVATIONS.DWG GAS 12/17/01

-  PIT EXCAVATION
-  PAVED AREA
-  SCRAP METAL PILE
-  RAILROAD TRACKS
-  GATED ENTRANCE

NOT TO SCALE









LEFTON IRON & METAL SITE  
EAST ST. LOUIS,  
ST. CLAIR COUNTY, ILLINOIS  
TDD NO. S05-0108-036

FIGURE 6  
YARD 2 PIT EXCAVATIONS

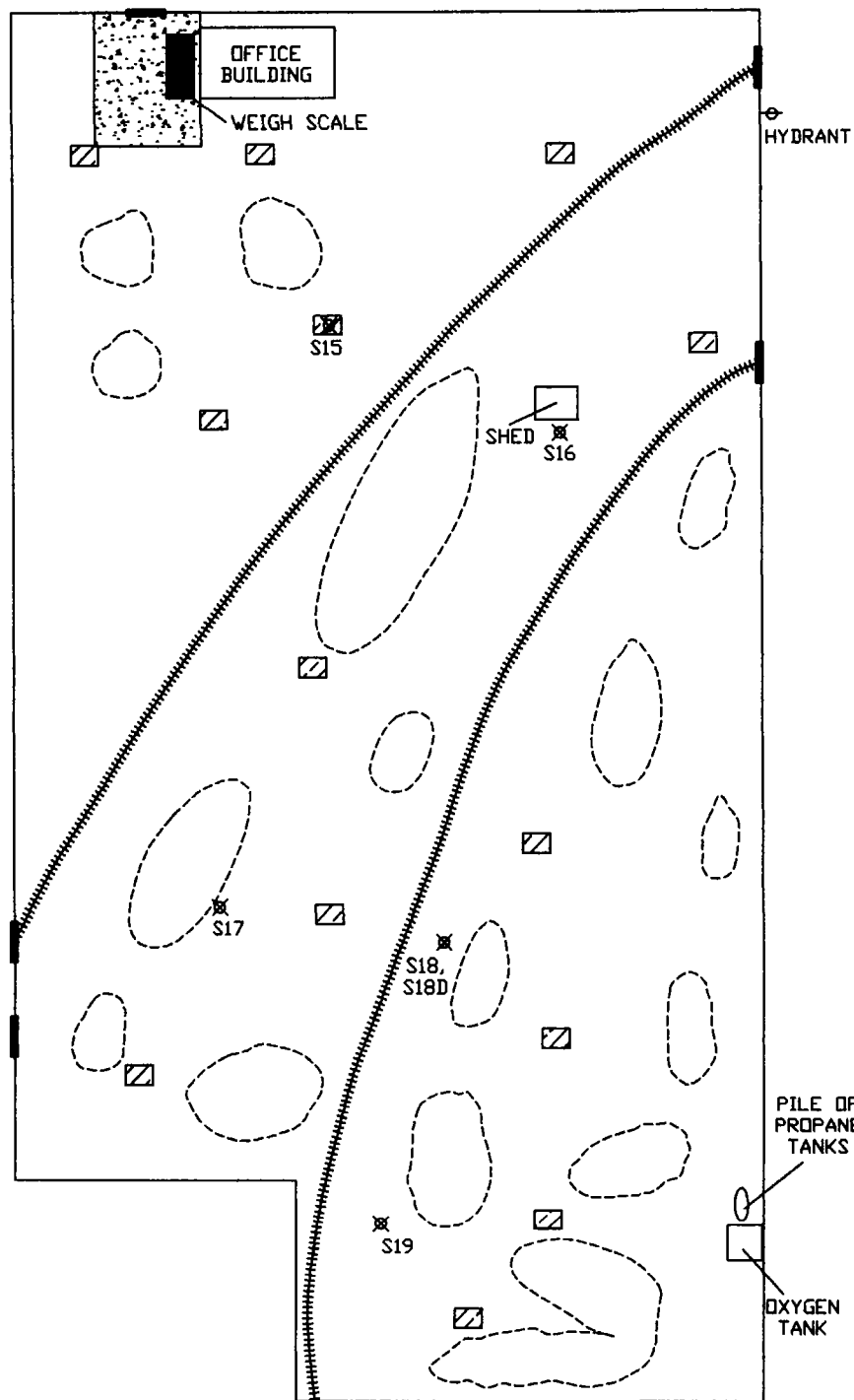
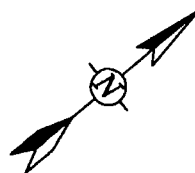


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G9009-L0100036 LEFTON-CONVERSE STREET-SOIL SAMPLE LOCATIONS.DWG GAS 12/17/01

-  PIT EXCAVATION
-  PAVED AREA
-  SCRAP METAL PILE
-  RAILROAD TRACKS
-  GATED ENTRANCE
-  SOIL SAMPLING LOCATION

NOT TO SCALE



LEFTON IRON & METAL SITE  
EAST ST. LOUIS,  
ST. CLAIR COUNTY, ILLINOIS  
TDD NO. S05-0108-036

FIGURE 8  
YARD 2 SOIL SAMPLING LOCATIONS



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**TABLE 3**  
**YARD 2 XRF SCREENING RESULTS**

Location	Description	Concentration Detected (ppm)											
		Fe	Zn	Pb	Cu	Cr	Hg	Sr	Zr	As	Mn	Mo	Ni
1	Surface	205,000	15,000	3,070	15,300	3,820	1,880	ND	104	ND	ND	ND	ND
2	Same location as 1 at 1 foot bgs	191,000	4,850	1,440	2,070	ND	ND	102	ND	ND	ND	ND	ND
3	Same location as 1 at 6 feet bgs	25,600	323	ND	ND	ND	ND	62.8	40.2	ND	ND	ND	ND
4	Surface	185,000	5,750	1,210	1,760	5,790	ND	117	86.5	ND	ND	81.3	ND
5	Same location as 4 at 1 foot bgs	100,000	11,200	1,980	15,300	4,140	2,910	ND	217	ND	ND	ND	ND
6	Same location as 4 at 5 feet bgs	117,000	4,760	2,360	1,250	ND	ND	79.5	109	ND	ND	61.8	ND
7	Depth = 1 foot bgs	107,000	1,920	620	ND	5,650	ND	75.1	47.4	ND	ND	53.9	1550
8	Same location as 7 at 4 feet bgs	200,000	2,910	1,130	ND	ND	ND	93.3	126	ND	ND	87.1	ND
9	Surface	583,000	39,000	ND	60,000	ND	13,600	ND	145	ND	ND	91.5	ND
10	Rescreening at 9	554,000	4,520	3,030	1,630	ND	ND	78.4	73.5	ND	ND	84.2	ND
11	Same location as 9 at 2 feet bgs	204,000	8,470	1,920	ND	ND	ND	83.7	83.4	ND	ND	ND	ND
12	Surface	333,000	6,560	1,170	1,060	ND	ND	68.9	83	298	ND	187	ND
13	Same location as 12 at 4 feet bgs	137,000	4,770	867	ND	ND	ND	46	147	203	ND	ND	ND
14	Surface	455,000	4,320	1,610	1,400	ND	ND	119	177	ND	ND	171	ND
15	Depth = 3 feet bgs	142,000	17,100		25,300	ND	5,760	ND	79.5	ND	ND	ND	ND
16A	Surface	519,000	8,470	2,320	3,040	ND	ND	ND	226	ND	ND	225	ND
16B	Surface	436,000	5,690	2,220	3,740	ND	ND	102	105	ND	ND	134	ND
17	Surface	487,000	4,390	3,420	26,800	8,570	339	1,510	ND	ND	ND	577	15,800
18	Surface	267,000	19,200	1,770	ND	ND	ND	85.1	74	380	ND	ND	ND
19	Surface	179,000	3,370	1,150	1,560	ND	ND	90.1	188	ND	ND	ND	ND
20	Depth = 4 feet bgs	394,000	8,610	1,840	2,450	ND	ND	90.8	253	238	ND	ND	ND
21	Surface	359,000	3,570	1,360	2,180	ND	ND	ND	92.3	ND	ND	67.2	ND
22	Surface	577,000	17,400	9,480	25,600	ND	4,850	ND	1,170	ND	ND	148	ND
23	Rescreening at 22	597,000	29,200	7,330	47,500	8,860	9,500	ND	162	ND	ND	159	ND
24	Depth = 5 feet bgs	94,400	3,550	702	ND	ND	ND	32.6	44.8	ND	ND	ND	ND
25	Surface	687,000	3,960	2,010	ND	ND	ND	ND	ND	ND	ND	130	ND
26	Surface	944,000	6,960	ND	10,200	ND	2,180	ND	ND	ND	ND	330	ND

TABLE 3 (Continued)  
YARD 2 XRF SCREENING RESULTS

Location	Description	Concentration Detected (ppm)										
		Fe	Zn	Pb	Cu	Cr	Hg	Sr	Zr	As	Mn	Ni
27	Same location as 26 at 5 feet bgs	165,000	6,180	2,230	2,270	ND	ND	82.2	80.5	ND	12,400	48.6
28	Surface	317,000	10,100	752	13,800	5,730	2,810	ND	72.7	ND	ND	135
29	Same location as 28 at 4 feet bgs	256,000	3,430	888	1,420	ND	ND	85.5	215	ND	ND	160
30	Surface	452,000	2,360	1,300	1,150	ND	ND	ND	ND	ND	ND	145
31	Surface	330,000	15,800	777	19,200	ND	3,930	ND	162	ND	ND	114
32	Depth = 5 feet bgs	103,000	4,660	1,270	ND	ND	ND	46.9	49.2	ND	ND	ND
33	Surface	411,000	39,900	ND	64,900	9,500	13,300	ND	184	ND	ND	ND
34	Rescreening at 33	320,000	5,370	1,970	ND	ND	ND	64.7	133	ND	ND	ND
35	Surface	304,000	24,200	716	37,500	8,700	7,950	ND	149	ND	ND	115
36	Surface	207,000	9,840	2,520	13,200	ND	1,040	ND	85.5	ND	ND	ND
37	Surface	206,000	5,370	1,360	ND	3,580	1,060	ND	70.9	ND	ND	91.2
38	Surface	203,000	10,200	2,010	11,000	4,560	2,000	ND	76.7	ND	ND	ND
39	Depth = 8 feet bgs	209,000	10,100	3,590	156	2,360	ND	113	158	ND	ND	ND
40	Surface	178,000	8,220	2,930	1,590	ND	ND	79.9	77.3	295	ND	ND
41	Same location as 37 at 8 feet bgs	96,400	4,820	3,180	1,630	ND	ND	72.7	136	ND	ND	ND
42	Surface	92,700	4,670	1,830	724	ND	ND	60.8	29.3	ND	ND	ND
43	Surface	198,000	7,190	24,400	1,380	ND	ND	ND	ND	3,180	ND	68.4

Notes:

As	=	Arsenic	ND	=	Not detected
bgs	=	Below ground surface	Ni	=	Nickel
Co	=	Cobalt	Pb	=	Lead
Cr	=	Chromium	ppm	=	Part per million
Cu	=	Copper	Rb	=	Rubidium
Fe	=	Iron	Sr	=	Strontium
Hg	=	Mercury	Zn	=	Zinc
Mn	=	Manganese	Zr	=	Zirconium
Mo	=	Molybdenum			



**TABLE 4**

**YARD 2 SOIL SAMPLE DESCRIPTIONS**

<b>Sample No.</b>	<b>Date</b>	<b>Time</b>	<b>Description</b>
S15	12 Sep 01	1545	Black stained and odorous soil at pit
S16	12 Sep 01	1600	Black stained soil southeast of shed
S17	12 Sep 01	1645	Sample collected from near scrap pile because of high mercury XRF screening concentration nearby
S18	13 Sep 01	0910	Sample collected from near scrap pile because of high mercury XRF screening concentration nearby
S18D	13 Sep 01	0910	Duplicate of Sample No. S18
S19	13 Sep 01	0930	Sample collected because of high mercury XRF screening concentration nearby

#### 4.0 ANALYTICAL RESULTS

---

START submitted all 21 soil samples collected for laboratory analysis and obtained analytical results for the samples. The samples were analyzed by Pace Analytical Services in Lenexa, Kansas, under analytical TDD No. S05-0109-002. The samples submitted for analysis and the parameters analyzed for were chosen by U.S. EPA OSC Turner. Analytical results are summarized in Table 5.

All samples were analyzed for total metals (Method 6010), mercury (Method 7471), toxicity characteristic leaching procedure (TCLP) metals (Method 6010), TCLP mercury (Method 7470), PCBs (Method 8082), and pH (Method 9045). In addition, Sample No. S3 was analyzed for organochlorine pesticides (Method 8081A).

The pH levels of all samples were within the regulatory limit of 2.0 to 12.5. According to 40 CFR Section 261.22, Paragraph (a)(1), none of the samples are considered to have the hazardous waste characteristic of corrosivity.

Sample concentrations were compared to residential soil preliminary remediation goals set by U.S. EPA Region 9 for metals and PCBs. Various sample results exceeded the regulatory limit for metals for arsenic (0.39 milligrams per kilogram [mg/kg]), cadmium (37 mg/kg), chromium (30 mg/kg), lead (400 mg/kg), and mercury (23 mg/kg). Sample No. S9 exceeded the regulatory limit for barium of 5,400 mg/kg. No sample concentrations exceeded the regulatory limits for selenium or silver (390 mg/kg for both). All sample concentrations exceeded the regulatory limit for the PCB congener Aroclor-1254 (220 micrograms per kilogram [ $\mu\text{g/kg}$ ]). All sample concentrations except for Samples No. S2, S2D, S3, S4, and S8 exceeded the regulatory limit for the PCB congeners Aroclor-1260 (220  $\mu\text{g/kg}$ ) and Aroclor -1254 (220  $\mu\text{g/kg}$ ). No sample concentrations exceeded the regulatory limits for Aroclor-1016 (3,900  $\mu\text{g/kg}$ ), Aroclor-1221 (220  $\mu\text{g/kg}$ ), Aroclor-1232 (220  $\mu\text{g/kg}$ ), Aroclor-1242 (220  $\mu\text{g/kg}$ ), and Aroclor-1248 (220  $\mu\text{g/kg}$ ).

For TCLP analyses, sample concentrations were compared to toxicity limits in 40 CFR Section 261.24, Paragraph (b), Table 1. Cadmium concentrations in Samples No. S1, S2, S2D, S3, S7, S14, and S17 exceeded the TCLP regulatory limit of 1 milligram per liter (mg/L). Lead concentrations in Samples No. S8, S9, S14, and S17 exceeded the TCLP regulatory limit of 5 mg/L. Sample No. S3 did not contain organochlorine pesticides at detectable concentrations.



**TABLE 5**  
**ANALYTICAL RESULTS**

Parameter	Regulatory Limit	Sample No. <sup>a</sup>							
		S1	S2	S2D	S3 <sup>b</sup>	S4	S5	S6	S7
Metals (mg/kg)									
Arsenic	0.39	35.6 J	138 J	67.7 J	21.5 J	16 J	15 J	18.1 J	53.4 J
Barium	5,400	641 J	1,430 J	437 J	819 J	610 J	193 J	344 J	868 J
Cadmium	37	219 J	475 J	203 J	114 J	178 J	73.5 J	152 J	385 J
Chromium	30	752 J	512 J	199 J	925 J	374 J	159 J	192 J	302 J
Lead	400	2,120 J	3,330 J	1,170 J	1,090 J	1,710 J	537 J	756 J	3,320 J
Selenium	390	35.8 J	34.1 U J	10.0 J	23.4 J	16.5 J	29.1 J	22.1 J	23.7 J
Silver	390	4.42 J	6.2 J	2.56 J	2.08 J	6.3 J	1.48 J	2.74 J	8.69 J
Mercury	23	5.86 J	NA	11.8 J	10.2 J	8.69 J	4.59 J	3.1 J	55.3 J
TCLP Metals (mg/L)									
Arsenic	5.0	ND	0.0882	0.0859	ND	ND	ND	ND	ND
Barium	100	0.903	1.43	1.57	2.7	0.478	0.226	0.188	1.05
Cadmium	1.0	1.1	1.79	1.88	3.29	0.909	0.592	0.401	3.07
Chromium	5.0	ND	ND	ND	ND	0.0111	ND	ND	ND
Lead	5.0	0.458 J	0.211	0.164 J	0.504	0.706	0.15	0.201	0.655
Selenium	1.0	ND	ND	ND	ND	ND	ND	ND	ND
Silver	5.0	ND	ND	0.0019 J	0.0032 J	ND	ND	ND	ND
Mercury	0.2	ND	ND	ND	ND	ND	ND	ND	ND



TABLE 5 (Continued)  
ANALYTICAL RESULTS

Parameter	Regulatory Limit	Sample No. <sup>a</sup>							
		S1	S2	S2D	S3 <sup>b</sup>	S4	S5	S6	S7
PCBs (µg/kg)									
Aroclor-1016	3,900	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1221	220	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1232	220	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	220	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	220	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	220	7,100	460,000	470,000	220,000	50,000	7,200	5,500	67,000
Aroclor-1260	220	3,900	ND	ND	ND	ND	3,800	3,900	57,000
General Chemistry									
pH	>2 or <12.5	8.34	NA	7.52	8.38	7.27	7.08	6.84	7.03

TABLE 5 (Continued)  
ANALYTICAL RESULTS

Parameter	Regulatory Limit	Sample No. *									
		S8	S9	S10	S11	S12	S13	S14	S15		
Metals (mg/kg)											
Arsenic	0.39	3.9 J	35.4 J	35.6 J	16.7 J	15 J	16 J	16.1 J	12.8 J		
Barium	5,400	157 J	9,240 J	572 J	191 J	335 J	391 J	397 J	285 J		
Cadmium	37	12.3 J	22.2 J	112 J	21.6 J	44.4 J	70.6 J	254 J	12.1 J		
Chromium	30	148 J	687 J	365 J	176 J	199 J	190 J	121 J	70.7 J		
Lead	400	453 J	11,000 J	1,330 J	467 J	800 J	897 J	1,240 J	656 J		
Selenium	390	7.8 J	9.9 J	18.3 J	14.4 J	17 J	16.2 J	10.5 J	18.1 J		
Silver	390	7.26 J	1.91 J	3.09 J	1.56 J	1.91 J	2.16 J	2.44 J	0.984 J		
Mercury	23	0.47 J	8.15 J	13.9 J	11.6 J	5.98 J	9.32 J	36.2 J	4.1 J		
TCLP Metals (mg/L)											
Arsenic	5.0	ND	ND	ND	ND	ND	ND	ND	ND		
Barium	100	4.61	1.39	0.587	1.46	0.669	0.746	1.29	4.1		
Cadmium	1.0	0.175	0.432	0.264	0.447	0.0356	0.114	6.88	0.158		
Chromium	5.0	ND	0.0538	ND	ND	ND	ND	ND	ND		
Lead	5.0	7.45	102	0.0439 J	0.169	ND	ND	5.85	2.47		
Selenium	1.0	ND	ND	ND	ND	ND	ND	ND	ND		
Silver	5.0	ND	0.0063 J	ND	ND	ND	ND	ND	0.0038 J		
Mercury	0.2	ND	ND	ND	ND	ND	ND	ND	ND		

TABLE 5 (Continued)

## ANALYTICAL RESULTS

Parameter	Regulatory Limit	Sample No. <sup>a</sup>									
		S8	S9	S10	S11	S12	S13	S14	S15		
PCBs (µg/kg)											
Aroclor-1016	3,900	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aroclor-1221	220	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aroclor-1232	220	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aroclor-1242	220	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aroclor-1248	220	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aroclor-1254	220	270	18,000	58,000	31,000	72,000	18,000	45,000	24,000		
Aroclor-1260	220	ND	11,000	43,000	19,000	39,000	12,000	27,000	21,000		
General Chemistry											
pH	>2 or <12.5	8.83	8.24	7.36	7.77	8.42	8.29	8.19	8.04		



TABLE 5 (Continued)  
ANALYTICAL RESULTS

Parameter	Regulatory Limit	Sample No.*				
		S16	S17	S18	S18D	S19
Metals (mg/kg)						
Arsenic	0.39	10.0 J	12.9 J	21.6 J	10.8 J	24.4 J
Barium	5,400	318 J	161 J	308 J	215 J	364 J
Cadmium	37	73.8 J	57.1 J	43.7 J	19.2 J	63.2 J
Chromium	30	5,680 J	425 J	1,320 J	434 J	897 J
Lead	400	1,130 J	6,000 J	862 J	520 J	1,200 J
Selenium	390	28.3 J	23.9 J	23.5 J	13.2 J	26.5 J
Silver	390	3.34 J	3.66 J	1.97 J	1.77 J	1.57 J
Mercury	23	5.61 J	22.0 J	16.2 J	21.2 J	14.1 J
TCLP Metals (mg/L)						
Arsenic	5.0	ND	ND	ND	ND	ND
Barium	100	0.539	1.03	1.89	1.74	3.07
Cadmium	1.0	0.196	3.3	0.574	0.54	0.766
Chromium	5.0	ND	ND	ND	ND	ND
Lead	5.0	0.293	145	0.652	0.23	0.589
Selenium	1.0	ND	ND	ND	ND	ND
Silver	5.0	ND	0.0068 J	0.0024 J	0.0019 J	ND
Mercury	0.2	ND	ND	ND	ND	ND

TABLE 5 (Continued)  
ANALYTICAL RESULTS

Parameter	Regulatory Limit	Sample No. <sup>a</sup>				
		S16	S17	S18	S18D	S19
PCBs (µg/kg)						
Aroclor-1016	3,900	ND	ND	ND	ND	ND
Aroclor-1221	220	ND	ND	ND	ND	ND
Aroclor-1232	220	ND	ND	ND	ND	ND
Aroclor-1242	220	ND	ND	ND	ND	ND
Aroclor-1248	220	ND	ND	ND	ND	ND
Aroclor-1254	220	4,400	18,000	34,000	44,000	12,000
Aroclor-1260	220	2,100	8,400	22,000	21,000	9,000
General Chemistry						
pH	>2 or <12.5	6.72	8.07	8.03	7.99	8.38

Notes:

µg/kg Microgram per kilogram  
m/L Milligram per liter  
mg/kg Milligram per kilogram  
J Sample concentration above method detection limit, but below reportable limit  
NA Not analyzed  
ND Sample concentration below method detection limit  
PCB Polychlorinated biphenyl  
TCLP Toxicity characteristic leaching procedure

<sup>a</sup> Shaded cells indicate results above the regulatory limits set forth (1) in 40 CFR Section 261 for TCLP metals and pH and (2) in U.S. EPA Region 9 preliminary remediation goals for metals and PCBs. The residential soil limit was used to be the most conservative.

<sup>b</sup> Sample No. S3 was also analyzed for organochlorine pesticides (Method 8081A). This sample contained no organochlorine pesticides at detectable concentrations.



Tetra Tech EM Inc.

## 5.0 POTENTIAL SITE-RELATED THREATS

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Paragraph (b)(2) of 40 CFR Section 300.415 lists factors to be considered when determining the appropriateness of a potential removal action at a site. The discussion below summarizes factors applicable to the Lefton site.

- **Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.** The Lefton site is located in a residential and small business area. Access to the Lefton site is uncontrolled, and there is evidence of trespassing by locals. This poses health concerns through the potential exposure of elderly individuals, pregnant women, and young children to PCBs and lead contamination present in site soil at high levels.

Harmful effects of lead involve low birth weight, premature birth, decreased mental ability in infants, reduced growth in young children, and learning difficulties. Effects of exposure to lead are most severe in developing fetuses in pregnant women and young children. Effects of lead in adults include decreased reaction time, inhibition of hemoglobin synthesis (causing anemia), damaged male reproductive system, and increased blood pressure. U.S. EPA considers lead to be a class B2 or probable human carcinogen.

- **Hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate or pose a threat of release.** Concentrations of PCBs and lead at elevated levels in surface soil at the site result in a threat of contaminant migration in melting snow or rain. Airborne contaminant migration is also possible through PCB adsorption to dust particles. Contaminants could also be tracked off site by people and animals that have contacted contaminated areas at the Lefton site.

IDPH and U.S. EPA XRF and analytical data document total lead concentrations greater than 5,000 ppm in surface soil and greater than 400 ppm at 6 inches bgs. PCBs were detected at levels greater than 400 ppm. IDPH sampling results were confirmed by the U.S. EPA site assessment, which further documents elevated levels of PCBs and lead at the Lefton site.

- **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.** Elevated levels of lead are present in surface soil and down to 6 inches bgs at the site. Contaminants could migrate off site and into the community through heavy rains or winds that would transport PCBs and heavy metals adsorbed to dust particles. As a result of such weather conditions, PCBs and lead could be continuously released to surrounding soil and air.
- **The availability of other appropriate federal or state response mechanisms to respond to the release.** U.S. EPA, a member of the East St. Louis Collaborative Partnership, has been asked to take part in cleanup efforts at the Lefton site. The Lefton site is part of a cooperative effort to limit exposure to high lead levels of sensitive populations in East St. Louis. IDPH and the U.S. EPA Region 5 Gateway Initiative



requested that the U.S. EPA Region 5 Removal Program proceed with a time-critical removal action at the Lefton site. Neither the City of East St. Louis nor the State of Illinois has the funds necessary to conduct the removal of soil containing PCBs and lead at the Lefton site.





## 6.0 SUMMARY

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The Lefton site is located in a residential and light industrial area in East St. Louis, St. Clair County, Illinois. The site consists of two yards, Yards 1 and 2. Both Yards 1 and 2 are secured by chain-linked fencing. Trespassing through breaches in the fence at Yard 1 has been documented. Analysis of soil samples collected during the site assessment from both yards reveal high concentrations of metals such as lead and mercury. Large piles of metal waste and scrap throughout both yards pose safety threats to possible trespassers. Contaminants present in surface soil at both yards could potentially migrate.

Because analytical results show high levels of lead and PCBs in soil at the site and because of the site's proximity to residential and business properties, the Lefton site poses a direct threat to human health and the environment. The site therefore meets the criteria for initiating a removal action as outlined in the NCP and Paragraph (b)(2) of 40 CFR Section 300.415. The Lefton site is not on the U.S.EPA National Priorities List and has no nationally significant issues.



**APPENDIX A**  
**PHOTOGRAPHIC LOG**  
(Five Pages)



Tetra Tech EM Inc.



**Photograph No.:** 1

**Orientation:** Southwest

**TDD Number:** S05-0108-036

**Date:** 11 Sep 01

**Location:** Lefton Iron & Metal (Yard 1)

**Subject:** Pile of cans near Sample No. S3 location



**Photograph No.:** 2

**Orientation:** North

**TDD Number:** S05-0108-036

**Date:** 11 Sep 01

**Location:** Lefton Iron & Metal (Yard 1)

**Subject:** Sludge near railroad tracks at Sample No. S4 location





Tetra Tech EM Inc.



**Photograph No.:** 3  
**TDD Number:** S05-0108-036  
**Location:** Lefton Iron & Metal (Yard 1)  
**Subject:** Lagoon at Sample No. S5 location

**Orientation:** North  
**Date:** 11 Sep 01



**Photograph No.:** 4  
**TDD Number:** S05-0108-036  
**Location:** Lefton Iron & Metal (Yard 1)  
**Subject:** Building 2 near Sample No. S6 location

**Orientation:** North  
**Date:** 11 Sep 01





Tetra Tech EM Inc.



**Photograph No.:** 5  
**TDD Number:** S05-0108-036  
**Location:** Lefton Iron & Metal (Yard 1)  
**Subject:** Pit Excavation 3

**Orientation:** Northwest  
**Date:** 11 Sep 01



**Photograph No.:** 6  
**TDD Number:** S05-0108-036  
**Location:** Lefton Iron & Metal (Yard 1)  
**Subject:** Breach in northeast fenceline

**Orientation:** Northeast  
**Date:** 12 Sep 01





Tetra Tech EM Inc.



**Photograph No.:** 7

**Orientation:** Northwest

**TDD Number:** S05-0108-036

**Date:** 12 Sep 01

**Location:** Lefton Iron & Metal (Yard 1)

**Subject:** Underground storage tank (UST) exploration



**Photograph No.:** 8

**Orientation:** North

**TDD Number:** S05-0108-036

**Date:** 12 Sep 01

**Location:** Lefton Iron & Metal (Yard 1)

**Subject:** Stained soil near transformer pole at Sample No. S10 location





Tetra Tech EM Inc.



**Photograph No.:** 9

**Orientation:** Northwest

**TDD Number:** S05-0108-036

**Date:** 12 Sep 01

**Location:** Lefton Iron & Metal (Yard 2)

**Subject:** Shed and stained soil near Sample No. S16 location



**Photograph No.:** 10

**Orientation:** Southeast

**TDD Number:** S05-0108-036

**Date:** 13 Sep 01

**Location:** Lefton Iron & Metal (Yard 2)

**Subject:** Scrap pile near Sample No. S18 location

**APPENDIX B**  
**DATA VALIDATION REPORT AND VALIDATED ANALYTICAL RESULTS**  
(Nine Pages)





## **Tetra Tech EM Inc.**

200 E. Randolph Drive, Suite 4700 ♦ Chicago, IL 60601 ♦ (312) 856-8700 ♦ FAX (312) 938-0118

### **MEMORANDUM**

**Date:** 11 Dec 01

**To:** Bryan Williams, Project Manager, Tetra Tech EM Inc. (Tetra Tech)  
Superfund Technical Assessment and Response Team (START) for Region 5

**From:** Harry Ellis, Chemist for Tetra Tech START for Region 5

**Subject:** Data Validation for  
Lefton Iron & Metal (Lefton) Site  
East St. Louis, Illinois  
Analytical Technical Direction Document (TDD) No. S05-0109-002  
Project TDD No. S05-0108-036

Laboratory: Pace Analytical Services, Inc. (Pace), Lenexa, Kansas  
Work Order No. 6052563  
Polychlorinated Biphenyl (PCB), pH, Total Metals, and Toxicity Characteristic Leaching  
Procedure (TCLP) Metals Analysis of 21 Soil Samples, and Pesticides Analysis of 1 Soil  
Sample

### **1.0 INTRODUCTION**

The Tetra Tech START for Region 5 validated pesticides, PCB, pH, total metals, and TCLP metals analytical data for 21 soil samples collected during site assessment activities on 11 through 13 Sep 01 at the Lefton site in East St. Louis, St. Clair County, Illinois. The samples were analyzed under the above-referenced work order by Pace using U.S. Environmental Protection Agency (U.S. EPA) SW-846 Method 8081A for pesticides analysis, SW-846 Method 8082 for PCB analysis, SW-846 Method 9045 for pH analysis, SW-846 Method 6010 for total and TCLP metals analyses, and SW-846 Methods 7470 and 7471 for mercury analysis.

The data were validated in general accordance with U.S. EPA's "Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated Oct 99 and "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated Feb 94. Organic data validation consisted of a review of the following quality control (QC) parameters: holding times, initial and continuing calibrations, blank results, surrogate results, matrix spike and matrix spike duplicate (MS/MSD) results, laboratory control sample (LCS) results, and target compound identification. Inorganic data validation (including indicator parameter data validation) consisted of a review of the following QC parameters: holding times, initial and continuing calibrations, blank results, LCS results, MS/MSD results, inductively coupled plasma (ICP) serial dilutions, ICP interference check sample results, and sample quantitation.

Section 2.0 discusses the results of the organic data validation, Section 3.0 discusses the results of the inorganic data validation, and Section 4.0 presents an overall assessment of the data. The attachment to this memorandum contains Pace's summary of analytical results, including START's handwritten data qualifications where warranted.

## **2.0 ORGANIC DATA VALIDATION RESULTS**

The results of START's organic data validation are summarized below in terms of the QC parameters reviewed.

### **2.1 HOLDING TIMES**

All holding time requirements were met.

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## **2.2 INITIAL AND CONTINUING CALIBRATIONS**

The initial calibration results were acceptable. The continuing calibration results for the confirmation column had high percent difference (%D) results for all compounds except Endosulfan I. No qualifications are warranted for these irregularities because this column is used only to confirm the presence of a pesticide in the sample. The primary (quantitation) column had high %D results for 4,4'-DDE and endrin ketone on the closing continuing calibration. Positive sample results for 4,4'-DDE and endrin ketone would have been flagged "J" to indicate that they are estimates, but these compounds were not detected in the investigative samples.

For the PCB analyses, all initial calibration results had acceptable correlation coefficients. The continuing calibration %D results were acceptable. Therefore, no qualifications are required for calibration irregularities.

## **2.3 BLANK RESULTS**

During the pesticides and PCB analyses, method blanks were run with each analytical batch in the proper sequence. No target analytes were detected in the blanks.

## **2.4 SURROGATE RESULTS**

Surrogate recovery results for the pesticides and PCB analyses of most samples were not usable because of the high dilution factors required as a result of the high concentrations of organochlorine compounds detected in the samples. No qualifications are warranted for this data gap. The less diluted samples had acceptable surrogate recovery results.

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## **2.5 MS/MSD RESULTS**

MS/MSD samples were analyzed for the PCB analyses and yielded acceptable results. It was not possible for the laboratory to analyze MS/MSD samples for the pesticides analyses because of insufficient sample volume.

## **2.6 LCS RESULTS**

An LCS was analyzed with the samples in each analytical batch. The LCS results were within the QC limits specified by the laboratory.

## **2.7 TARGET COMPOUND IDENTIFICATION**

The laboratory reported that no pesticides were detected in the sample analyzed. Numerous peaks from the sample's PCB content were present, some of them within the windows for the target organochlorine pesticides. In most cases (such as for 4,4'-DDT), a peak was present on one column but not on the other. In a few cases (such as for dieldrin), peaks were present on both columns but had very different sizes, producing very different quantitative results. Therefore, the laboratory deemed these to be false positive readings. Tetra Tech concurs with this judgment.

For the PCB analyses, the reported identities of PCB congeners in the mixtures were verified by good matches between the sample congener patterns and the standard congener patterns.

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### **3.0 INORGANIC DATA VALIDATION RESULTS**

The results of START's inorganic data validation (including pH) are summarized below in terms of the QC parameters reviewed. The following data qualifiers were applied to the sample analytical results as appropriate (see the attachment):

- U - The metal was analyzed for but not detected. The reported numerical value is the sample detection limit.
- J - The metal was detected. The reported numerical value is considered estimated for QC reasons.
- UJ - The metal was analyzed for but not detected. The reported sample detection limit is considered estimated for QC reasons.

### **3.1 HOLDING TIMES**

All samples were analyzed for metals within the holding time limits of (1) 28 days for mercury and (2) 6 months for all other metals.

All samples for pH analysis were not analyzed within the established or recommended 24-hour holding time limit. This situation often occurs because of sample transportation constraints. Although the recommended holding time was exceeded by a relatively short period, pH results were probably not dramatically affected assuming the samples were stored at the proper temperature. Therefore, no data qualifications are warranted. In addition, sample No. S2 was not analyzed for pH because all of the sample material had been used for other analyses before the pH analysis could be run.

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### **3.2 INITIAL AND CONTINUING CALIBRATIONS**

The initial calibration results were all satisfactory, with high correlation coefficients or appropriate recoveries as required by the various methods. All continuing calibration recoveries were also within the QC limits.

### **3.3 BLANK RESULTS**

Appropriate blanks (such as initial calibration, continuing calibration, and preparation blanks) were run with each analytical batch. Low concentrations (less than the reporting limit) of all target metals were detected in some of the blanks analyzed with the total metals analyses. Similar low concentrations of barium, chromium, lead, selenium, and mercury were detected in some of the blanks analyzed with the TCLP metals analyses. One positive total selenium result, some positive TCLP lead results, and most positive TCLP chromium, selenium, and mercury results had concentrations similar to those in the blanks; therefore, these positive investigative sample results were flagged "U" to indicate that they are laboratory artifacts.

### **3.4 LCS RESULTS**

An LCS was analyzed with each analytical batch. All of the LCS results were within the QC limits specified by the laboratory.

### **3.5 MS/MSD RESULTS**

MS/MSD samples were analyzed as required for the total metals analyses. Because of sample volume shortage, MS samples and matrix duplicate (MD) samples were analyzed for the TCLP metals analysis. In the two pairs of TCLP MS/MD analyses, one cadmium MS result was unusable because the sample contained a much higher concentration of cadmium than the spike. All other results were satisfactory.

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The situation was quite different for the total metals MS/MSD analyses. First, barium, cadmium, and lead concentrations in both sample pairs and the chromium concentration in one sample pair generally exceeded the spike levels (such as more than 20-fold for lead in the pair for sample No. S1), making the spike recovery results unusable. These results were then used as sample/sample duplicate pairs, but barium, chromium, and lead results were still unsatisfactory. For example, the MSD sample for sample No. S1 contained more than four times the lead concentration of the MS sample. Of the spike results that could be used, one arsenic recovery and one mercury recovery result were within QC limits; one arsenic recovery, one mercury recovery, and one silver recovery result were above QC limits; and all other recoveries were below QC limits. In fact, the chromium recoveries from sample No. S10 were negative because the MS and MSD samples contained lower chromium concentrations than the unspiked sample. In many cases, excessive differences also existed between the two spike results. However, post-digestion spike results were within QC limits except for very low recovery of cadmium from sample No. S1. Based on these results, significant matrix interference is occurring for some metals and metals within the soil matrix are heterogeneously distributed. All results for total metals were therefore flagged "J" or "UJ" as appropriate to indicate that they are estimated.

### 3.6 ICP SERIAL DILUTIONS

ICP serial dilution analyses were performed as required. In the total metals analyses, all results for the ICP serial dilution on sample No. S1 were within QC limits, but the diluted sample No. S10 yielded excessive recoveries for barium, cadmium, chromium, and lead, indicating matrix interference. Results for these metals in sample No. S10 are flagged "J" to indicate that they are estimates biased low. In the serial dilution analysis of the TCLP extract of sample No. S1, lead had a similar high recovery. Therefore, the lead result for the TCLP extract of sample No. S1 is also flagged "J" as estimated and biased low.

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### **3.7 ICP INTERFERENCE CHECK SAMPLE RESULTS**

ICP interference check sample analyses were performed as required. All results were within QC limits.

### **3.8 SAMPLE QUANTITATION**

Some analytical results were above the sample detection limit but below the sample reporting limit, which corresponds to the low calibration standard. These extrapolations are flagged "J" to indicate that they are considered estimates.

## **4.0 OVERALL ASSESSMENT OF DATA**

Overall, the sample analytical data generated by Pace are acceptable for use as qualified. No data were rejected for QC reasons.

The high concentrations of PCBs in the samples could mask low concentrations of pesticides. Because PCBs and the target organochlorine pesticides have similar chemical and physical properties, no known analytical methods are capable of detecting low concentrations of pesticides in samples having the concentrations of PCBs like those of these investigative samples. A mass spectroscopy detector such as that used in U.S. EPA SW-846 Method 8270C could conclusively identify pesticides among PCBs, but this detection technique has a much higher limit of detection for organochlorine compounds than the electron-capture detector used under SW-846 Methods 8081A and 8082.

All total metals analytical results are considered estimated. For some metals, there is evidence of matrix interference with digestion (arsenic, mercury, selenium, and silver) or with the analysis itself (cadmium). For most metals, there is good evidence of highly heterogenous distributions of metals within the soil matrix, probably because the contamination is in the form of fine particulates. These problems are common in such highly contaminated samples but may not be an issue for the relatively uncontaminated

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Data Validation for  
Lefton Iron & Metal Site  
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samples collected from the perimeter of the contaminated area. If these sorts of problems are also associated with the less contaminated areas, a relatively large number of data points will be required to estimate representative concentrations.

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**ATTACHMENT**

**PACE SUMMARY OF SAMPLE ANALYTICAL RESULTS**

(117 Sheets)

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Pace Sample No.: 604573907

Client Sample ID: S3

Client Name: TETRA TECH EMI

Analytical Method: EPA 8081A

Matrix: Soil

Percent Moisture: 19.5

Date Collected: 09/11/01 14:32

Date Received: 09/14/01 11:33

Date Ext./Dig. : 09/14/01

Date Analyzed: 09/16/01

Batch Number: 109485

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
4,4'-DDD	30.0	420	ug/kg	100		U
4,4'-DDE	23.0	160	ug/kg	100		U
4,4'-DDT	27.2	490	ug/kg	100		U
Aldrin	24.2	160	ug/kg	100		U
alpha-BHC	24.2	120	ug/kg	100		U
alpha-Chlordane	1240	8400	ug/kg	4000		U
beta-BHC	25.3	250	ug/kg	100		U
Chlordane (Technical)		570	ug/kg	100		U
delta-BHC	32.4	370	ug/kg	100		U
Dieldrin	2360	8200	ug/kg	10000		U
Endosulfan I	32.1	570	ug/kg	100		U
Endosulfan II	27.9	160	ug/kg	100		U
Endosulfan sulfate	24.8	2700	ug/kg	100		U
Endrin	15.2	250	ug/kg	100		U
Endrin aldehyde	23.5	940	ug/kg	100		U
Endrin ketone	154	410	ug/kg	100		U
gamma-BHC (Lindane)	24.2	160	ug/kg	100		U
gamma-Chlordane	1140	8400	ug/kg	4000		U
Heptachlor	19.4	120	ug/kg	100		U
Heptachlor epoxide	2.39	410	ug/kg	100		U
Methoxychlor	297	7200	ug/kg	100		U
Toxaphene	1020	9800	ug/kg	100		U

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604573840

Client Sample ID: S1

Client Name: TETRA TECH EMI

Analytical Method: EPA 8082

Matrix: Soil

Percent Moisture: 3.9

Date Collected: 09/11/01 14:15

Date Received: 09/14/01 11:33

Date Ext./Dig. : 09/14/01

Date Analyzed: 09/18/01

Batch Number: 109491

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	573	2100	ug/kg	60.0		U
PCB-1221 (Aroclor 1221)	375	2100	ug/kg	60.0		U
PCB-1232 (Aroclor 1232)	343	2100	ug/kg	60.0		U
PCB-1242 (Aroclor 1242)	590	2100	ug/kg	60.0		U
PCB-1248 (Aroclor 1248)	484	2100	ug/kg	60.0		U
PCB-1254 (Aroclor 1254)	338	2100	ug/kg	60.0	7100	
PCB-1260 (Aroclor 1260)	426	2100	ug/kg	60.0	3900	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604573865

Date Collected: 09/11/01 14:20

Client Sample ID: S2

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/18/01

Matrix: Soil

Batch Number: 109491

Percent Moisture: 20

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	13400	49000	ug/kg	1190		U
PCB-1221 (Aroclor 1221)	8750	49000	ug/kg	1190		U
PCB-1232 (Aroclor 1232)	8000	49000	ug/kg	1190		U
PCB-1242 (Aroclor 1242)	13800	49000	ug/kg	1190		U
PCB-1248 (Aroclor 1248)	11300	49000	ug/kg	1190		U
PCB-1254 (Aroclor 1254)	7880	49000	ug/kg	1190	460000	
PCB-1260 (Aroclor 1260)	9950	49000	ug/kg	1190		U

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604573881

Date Collected: 09/11/01 14:20

Client Sample ID: S2D

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/18/01

Matrix: Soil

Batch Number: 109491

Percent Moisture: 26.1

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	14500	53000	ug/kg	1200		U
PCB-1221 (Aroclor 1221)	9460	53000	ug/kg	1200		U
PCB-1232 (Aroclor 1232)	8660	53000	ug/kg	1200		U
PCB-1242 (Aroclor 1242)	14900	53000	ug/kg	1200		U
PCB-1248 (Aroclor 1248)	12200	53000	ug/kg	1200		U
PCB-1254 (Aroclor 1254)	8530	53000	ug/kg	1200	470000	
PCB-1260 (Aroclor 1260)	10800	53000	ug/kg	1200		U

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604573907

Date Collected: 09/11/01 14:32

Client Sample ID: S3

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/18/01

Matrix: Soil

Batch Number: 109491

Percent Moisture: 19.5

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	6820	25000	ug/kg	599		U
PCB-1221 (Aroclor 1221)	4460	25000	ug/kg	599		U
PCB-1232 (Aroclor 1232)	4080	25000	ug/kg	599		U
PCB-1242 (Aroclor 1242)	7020	25000	ug/kg	599		U
PCB-1248 (Aroclor 1248)	5760	25000	ug/kg	599		U
PCB-1254 (Aroclor 1254)	4020	25000	ug/kg	599	220000	
PCB-1260 (Aroclor 1260)	5080	25000	ug/kg	599		U

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604573923

Client Sample ID: S4

Client Name: TETRA TECH EMI

Analytical Method: EPA 8082

Matrix: Soil

Percent Moisture: 12.3

Date Collected: 09/11/01 14:37

Date Received: 09/14/01 11:33

Date Ext./Dig. : 09/14/01

Date Analyzed: 09/16/01

Batch Number: 109491

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	6000	22000	ug/kg	585		U
PCB-1221 (Aroclor 1221)	3930	22000	ug/kg	585		U
PCB-1232 (Aroclor 1232)	3590	22000	ug/kg	585		U
PCB-1242 (Aroclor 1242)	6180	22000	ug/kg	585		U
PCB-1248 (Aroclor 1248)	5070	22000	ug/kg	585		U
PCB-1254 (Aroclor 1254)	3540	22000	ug/kg	585	50000	
PCB-1260 (Aroclor 1260)	4470	22000	ug/kg	585		U

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.



Pace Sample No.: 604573949

Client Sample ID: S5

Client Name: TETRA TECH EMI

Analytical Method: EPA 8082

Matrix: Soil

Percent Moisture: 5.5

Date Collected: 09/11/01 14:42

Date Received: 09/14/01 11:33

Date Ext./Dig. : 09/14/01

Date Analyzed: 09/18/01

Batch Number: 109491

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	573	2100	ug/kg	59.4		U
PCB-1221 (Aroclor 1221)	375	2100	ug/kg	59.4		U
PCB-1232 (Aroclor 1232)	343	2100	ug/kg	59.4		U
PCB-1242 (Aroclor 1242)	590	2100	ug/kg	59.4		U
PCB-1248 (Aroclor 1248)	484	2100	ug/kg	59.4		U
PCB-1254 (Aroclor 1254)	338	2100	ug/kg	59.4	7200	
PCB-1260 (Aroclor 1260)	426	2100	ug/kg	59.4	3800	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604573964

Date Collected: 09/11/01 14:50

Client Sample ID: S6

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/18/01

Matrix: Soil

Batch Number: 109491

Percent Moisture: 8.5

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	573	2100	ug/kg	59.3		U
PCB-1221 (Aroclor 1221)	375	2100	ug/kg	59.3		U
PCB-1232 (Aroclor 1232)	343	2100	ug/kg	59.3		U
PCB-1242 (Aroclor 1242)	590	2100	ug/kg	59.3		U
PCB-1248 (Aroclor 1248)	484	2100	ug/kg	59.3		U
PCB-1254 (Aroclor 1254)	338	2100	ug/kg	59.3	5500	
PCB-1260 (Aroclor 1260)	426	2100	ug/kg	59.3	3900	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604573980

Client Sample ID: S7

Client Name: TETRA TECH EMI

Analytical Method: EPA 8082

Matrix: Soil

Percent Moisture: 49.9

Date Collected: 09/11/01 15:21

Date Received: 09/14/01 11:33

Date Ext./Dig. : 09/14/01

Date Analyzed: 09/16/01

Batch Number: 109491

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	10600	39000	ug/kg	599		U
PCB-1221 (Aroclor 1221)	6960	39000	ug/kg	599		U
PCB-1232 (Aroclor 1232)	6370	39000	ug/kg	599		U
PCB-1242 (Aroclor 1242)	11000	39000	ug/kg	599		U
PCB-1248 (Aroclor 1248)	8980	39000	ug/kg	599		U
PCB-1254 (Aroclor 1254)	6280	39000	ug/kg	599	67000	
PCB-1260 (Aroclor 1260)	7920	39000	ug/kg	599	57000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574004

Date Collected: 09/11/01 15:29

Client Sample ID: S8

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/16/01

Matrix: Soil

Batch Number: 109491

Percent Moisture: 15.7

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	62.7	230	ug/kg	5.93		U
PCB-1221 (Aroclor 1221)	41.1	230	ug/kg	5.93		U
PCB-1232 (Aroclor 1232)	37.6	230	ug/kg	5.93		U
PCB-1242 (Aroclor 1242)	64.6	230	ug/kg	5.93		U
PCB-1248 (Aroclor 1248)	53.0	230	ug/kg	5.93		U
PCB-1254 (Aroclor 1254)	37.0	230	ug/kg	5.93	270	
PCB-1260 (Aroclor 1260)	46.7	230	ug/kg	5.93		U

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574020

Date Collected: 09/11/01 15:35

Client Sample ID: S9

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/16/01

Matrix: Soil

Batch Number: 109491

Percent Moisture: 18.4

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	655	2400	ug/kg	58.8		U
PCB-1221 (Aroclor 1221)	428	2400	ug/kg	58.8		U
PCB-1232 (Aroclor 1232)	392	2400	ug/kg	58.8		U
PCB-1242 (Aroclor 1242)	674	2400	ug/kg	58.8		U
PCB-1248 (Aroclor 1248)	553	2400	ug/kg	58.8		U
PCB-1254 (Aroclor 1254)	386	2400	ug/kg	58.8	18000	
PCB-1260 (Aroclor 1260)	487	2400	ug/kg	58.8	11000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574046  
Client Sample ID: S10  
Client Name: TETRA TECH EMI  
Analytical Method: EPA 8082  
Matrix: Soil  
Percent Moisture: 19.3

Date Collected: 09/12/01 09:10  
Date Received: 09/14/01 11:33  
Date Ext./Dig. : 09/14/01  
Date Analyzed: 09/18/01  
Batch Number: 109491  
Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	3270	12000	ug/kg	292		U
PCB-1221 (Aroclor 1221)	2140	12000	ug/kg	292		U
PCB-1232 (Aroclor 1232)	1960	12000	ug/kg	292		U
PCB-1242 (Aroclor 1242)	3370	12000	ug/kg	292		U
PCB-1248 (Aroclor 1248)	2760	12000	ug/kg	292		U
PCB-1254 (Aroclor 1254)	1930	12000	ug/kg	292	58000	
PCB-1260 (Aroclor 1260)	2440	12000	ug/kg	292	43000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574061

Client Sample ID: S11

Client Name: TETRA TECH EMI

Analytical Method: EPA 8082

Matrix: Soil

Percent Moisture: 12

Date Collected: 09/12/01 09:13

Date Received: 09/14/01 11:33

Date Ext./Dig. : 09/14/01

Date Analyzed: 09/18/01

Batch Number: 109492

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	1230	4500	ug/kg	120		U
PCB-1221 (Aroclor 1221)	803	4500	ug/kg	120		U
PCB-1232 (Aroclor 1232)	735	4500	ug/kg	120		U
PCB-1242 (Aroclor 1242)	1260	4500	ug/kg	120		U
PCB-1248 (Aroclor 1248)	1040	4500	ug/kg	120		U
PCB-1254 (Aroclor 1254)	724	4500	ug/kg	120	31000	
PCB-1260 (Aroclor 1260)	914	4500	ug/kg	120	19000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574087

Date Collected: 09/12/01 09:45

Client Sample ID: S12

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig.: 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/18/01

Matrix: Soil

Batch Number: 109492

Percent Moisture: 6.6

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	2730	10000	ug/kg	293		U
PCB-1221 (Aroclor 1221)	1780	10000	ug/kg	293		U
PCB-1232 (Aroclor 1232)	1630	10000	ug/kg	293		U
PCB-1242 (Aroclor 1242)	2810	10000	ug/kg	293		U
PCB-1248 (Aroclor 1248)	2300	10000	ug/kg	293		U
PCB-1254 (Aroclor 1254)	1610	10000	ug/kg	293	72000	
PCB-1260 (Aroclor 1260)	2030	10000	ug/kg	293	39000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.



Pace Sample No.: 604574103

Client Sample ID: S13

Client Name: TETRA TECH EMI

Analytical Method: EPA 8082

Matrix: Soil

Percent Moisture: 8.6

Date Collected: 09/12/01 09:52

Date Received: 09/14/01 11:33

Date Ext./Dig. : 09/14/01

Date Analyzed: 09/16/01

Batch Number: 109492

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	600	2200	ug/kg	59.9		U
PCB-1221 (Aroclor 1221)	393	2200	ug/kg	59.9		U
PCB-1232 (Aroclor 1232)	359	2200	ug/kg	59.9		U
PCB-1242 (Aroclor 1242)	618	2200	ug/kg	59.9		U
PCB-1248 (Aroclor 1248)	507	2200	ug/kg	59.9		U
PCB-1254 (Aroclor 1254)	354	2200	ug/kg	59.9	18000	
PCB-1260 (Aroclor 1260)	447	2200	ug/kg	59.9	12000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574129

Date Collected: 09/12/01 10:45

Client Sample ID: S14

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/16/01

Matrix: Soil

Batch Number: 109492

Percent Moisture: 15.5

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	6270	23000	ug/kg	599		U
PCB-1221 (Aroclor 1221)	4110	23000	ug/kg	599		U
PCB-1232 (Aroclor 1232)	3760	23000	ug/kg	599		U
PCB-1242 (Aroclor 1242)	6460	23000	ug/kg	599		U
PCB-1248 (Aroclor 1248)	5300	23000	ug/kg	599		U
PCB-1254 (Aroclor 1254)	3700	23000	ug/kg	599	45000	
PCB-1260 (Aroclor 1260)	4670	23000	ug/kg	599	27000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574145

Date Collected: 09/12/01 15:50

Client Sample ID: S15

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig.: 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/16/01

Matrix: Soil

Batch Number: 109492

Percent Moisture: 18

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	655	2400	ug/kg	59.4		U
PCB-1221 (Aroclor 1221)	428	2400	ug/kg	59.4		U
PCB-1232 (Aroclor 1232)	392	2400	ug/kg	59.4		U
PCB-1242 (Aroclor 1242)	674	2400	ug/kg	59.4		U
PCB-1248 (Aroclor 1248)	553	2400	ug/kg	59.4		U
PCB-1254 (Aroclor 1254)	386	2400	ug/kg	59.4	24000	
PCB-1260 (Aroclor 1260)	487	2400	ug/kg	59.4	21000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574160

Date Collected: 09/12/01 16:00

Client Sample ID: S16

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig.: 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/18/01

Matrix: Soil

Batch Number: 109492

Percent Moisture: 6.9

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	573	2100	ug/kg	60.0		U
PCB-1221 (Aroclor 1221)	375	2100	ug/kg	60.0		U
PCB-1232 (Aroclor 1232)	343	2100	ug/kg	60.0		U
PCB-1242 (Aroclor 1242)	590	2100	ug/kg	60.0		U
PCB-1248 (Aroclor 1248)	484	2100	ug/kg	60.0		U
PCB-1254 (Aroclor 1254)	338	2100	ug/kg	60.0	4400	
PCB-1260 (Aroclor 1260)	426	2100	ug/kg	60.0	2100	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574186

Client Sample ID: S17

Client Name: TETRA TECH EMI

Analytical Method: EPA 8082

Matrix: Soil

Percent Moisture: 13.2

Date Collected: 09/12/01 16:50

Date Received: 09/14/01 11:33

Date Ext./Dig.: 09/14/01

Date Analyzed: 09/18/01

Batch Number: 109492

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	1230	4500	ug/kg	118		U
PCB-1221 (Aroclor 1221)	803	4500	ug/kg	118		U
PCB-1232 (Aroclor 1232)	735	4500	ug/kg	118		U
PCB-1242 (Aroclor 1242)	1260	4500	ug/kg	118		U
PCB-1248 (Aroclor 1248)	1040	4500	ug/kg	118		U
PCB-1254 (Aroclor 1254)	724	4500	ug/kg	118	18000	
PCB-1260 (Aroclor 1260)	914	4500	ug/kg	118	8400	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574244

Date Collected: 09/13/01 09:10

Client Sample ID: S18

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/16/01

Matrix: Soil

Batch Number: 109492

Percent Moisture: 18.2

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	655	2400	ug/kg	58.6		U
PCB-1221 (Aroclor 1221)	428	2400	ug/kg	58.6		U
PCB-1232 (Aroclor 1232)	392	2400	ug/kg	58.6		U
PCB-1242 (Aroclor 1242)	674	2400	ug/kg	58.6		U
PCB-1248 (Aroclor 1248)	553	2400	ug/kg	58.6		U
PCB-1254 (Aroclor 1254)	756	4700	ug/kg	117	34000	
PCB-1260 (Aroclor 1260)	487	2400	ug/kg	58.6	22000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574269

Date Collected: 09/13/01 09:10

Client Sample ID: S18D

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig. : 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/16/01

Matrix: Soil

Batch Number: 109492

Percent Moisture: 19.1

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	655	2400	ug/kg	59.4		U
PCB-1221 (Aroclor 1221)	428	2400	ug/kg	59.4		U
PCB-1232 (Aroclor 1232)	392	2400	ug/kg	59.4		U
PCB-1242 (Aroclor 1242)	674	2400	ug/kg	59.4		U
PCB-1248 (Aroclor 1248)	553	2400	ug/kg	59.4		U
PCB-1254 (Aroclor 1254)	1930	12000	ug/kg	297	44000	
PCB-1260 (Aroclor 1260)	487	2400	ug/kg	59.4	21000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.

Pace Sample No.: 604574285

Date Collected: 09/13/01 09:30

Client Sample ID: S19

Date Received: 09/14/01 11:33

Client Name: TETRA TECH EMI

Date Ext./Dig.: 09/14/01

Analytical Method: EPA 8082

Date Analyzed: 09/16/01

Matrix: Soil

Batch Number: 109492

Percent Moisture: 11.2

Pace Project No.: 6052563

Compound	MDL	PQL	Units	Dilution	Results	Qualifier
PCB-1016 (Aroclor 1016)	600	2200	ug/kg	59.1		U
PCB-1221 (Aroclor 1221)	393	2200	ug/kg	59.1		U
PCB-1232 (Aroclor 1232)	359	2200	ug/kg	59.1		U
PCB-1242 (Aroclor 1242)	618	2200	ug/kg	59.1		U
PCB-1248 (Aroclor 1248)	507	2200	ug/kg	59.1		U
PCB-1254 (Aroclor 1254)	354	2200	ug/kg	59.1	12000	
PCB-1260 (Aroclor 1260)	447	2200	ug/kg	59.1	9000	

U - The analyte was analyzed for, but not detected above MDL.

J - The analyte was positively identified below the PQL.

B - The analyte was found in an associated method blank, as well as in the sample.



**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573840 Client ID: S1  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.04 Volume: 100 Percent Moisture: 3.927203

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.40	0.50	J 35.6	R*	1	ICP	9/18/2001	10:36
Barium	233.53	0.18	0.40	J 641	R*	1	ICP	9/18/2001	10:36
Cadmium	226.50	0.025	0.50	J 219	R	1	ICP	9/18/2001	10:36
Chromium	267.72	0.030	0.70	J 752	R*	1	ICP	9/18/2001	10:36
Lead	220.35	0.23	0.50	J 2120	R*	1	ICP	9/18/2001	10:36
Selenium	196.03	0.46	1.0	J 35.8	R*	1	ICP	9/18/2001	10:36
Silver	328.07	0.18	0.70	J 4.4	R*	1	ICP	9/18/2001	10:36

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573865 Client ID: S2  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 0.11 Volume: 100 Percent Moisture: 20.02442

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	4.6	5.7	J 138	R*	1	ICP	9/18/2001	10:56
Barium	233.53	2.0	4.6	J 1430	R*	1	ICP	9/18/2001	10:56
Cadmium	226.50	0.28	5.7	J 475	R	1	ICP	9/18/2001	10:56
Chromium	267.72	0.34	8.0	J 512	R*	1	ICP	9/18/2001	10:56
Lead	220.35	2.6	5.7	J 3330	R*	1	ICP	9/18/2001	10:56
Selenium	196.03	5.3	11.4	U 34.1	R*	1	ICP	9/18/2001	10:56
Silver	328.07	2.1	8.0	J 6.2	BR*	1	ICP	9/18/2001	10:56

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6 Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL

B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573881 Client ID: S2D  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.05 Volume: 100 Percent Moisture: 26.115859

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.52	0.65	J 67.7	R*	1	ICP	9/18/2001	11:02
Barium	233.53	0.23	0.52	J 437	R*	1	ICP	9/18/2001	11:02
Cadmium	226.50	0.032	0.65	J 203	R	1	ICP	9/18/2001	11:02
Chromium	267.72	0.039	0.90	J 199	R*	1	ICP	9/18/2001	11:02
Lead	220.35	0.30	0.65	J 1170	R*	1	ICP	9/18/2001	11:02
Selenium	196.03	0.60	1.3	J 10.0	R*	1	ICP	9/18/2001	11:02
Silver	328.07	0.23	0.90	J 2.6	R*	1	ICP	9/18/2001	11:02

HUE  
6 Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573907 Client ID: S3  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.08 Volume: 100 Percent Moisture: 19.454887

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.46	0.58	J 21.5	R*	1	ICP	9/18/2001	11:08
Barium	233.53	0.20	0.46	J 819	R*	1	ICP	9/18/2001	11:08
Cadmium	226.50	0.029	0.58	J 114	R	1	ICP	9/18/2001	11:08
Chromium	267.72	0.035	0.81	J 925	R*	1	ICP	9/18/2001	11:08
Lead	220.35	0.27	0.58	J 1090	R*	1	ICP	9/18/2001	11:08
Selenium	196.03	0.53	1.2	J 23.4	R*	1	ICP	9/18/2001	11:08
Silver	328.07	0.21	0.81	J 2.1	R*	1	ICP	9/18/2001	11:08

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6 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573923 Client ID: S4  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.05 Volume: 100 Percent Moisture: 12.346843

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.44	0.54	J 16.0	R*	1	ICP	9/18/2001	11:15
Barium	233.53	0.19	0.44	J 610	R*	1	ICP	9/18/2001	11:15
Cadmium	226.50	0.027	0.54	J 178	R	1	ICP	9/18/2001	11:15
Chromium	267.72	0.033	0.76	J 374	R*	1	ICP	9/18/2001	11:15
Lead	220.35	0.25	0.54	J 1710	R*	1	ICP	9/18/2001	11:15
Selenium	196.03	0.50	1.1	J 16.5	R*	1	ICP	9/18/2001	11:15
Silver	328.07	0.20	0.76	J 6.3	R*	1	ICP	9/18/2001	11:15

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6 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573949 Client ID: S5  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.05 Volume: 100 Percent Moisture: 5.518554

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.41	0.50	J 15.0	R*	1	ICP	9/18/2001	11:30
Barium	233.53	0.18	0.40	J 193	R*	1	ICP	9/18/2001	11:30
Cadmium	226.50	0.025	0.50	J 73.5	R	1	ICP	9/18/2001	11:30
Chromium	267.72	0.030	0.71	J 159	R*	1	ICP	9/18/2001	11:30
Lead	220.35	0.23	0.50	J 537	R*	1	ICP	9/18/2001	11:30
Selenium	196.03	0.47	1.0	J 29.1	R*	1	ICP	9/18/2001	11:30
Silver	328.07	0.18	0.71	> 1.5	R*	1	ICP	9/18/2001	11:30

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6 Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573964 Client ID: S6  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.03 Volume: 100 Percent Moisture: 8.457249

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.43	0.53	J 18.1	R*	1	ICP	9/18/2001	11:37
Barium	233.53	0.19	0.42	J 344	R*	1	ICP	9/18/2001	11:37
Cadmium	226.50	0.027	0.53	J 152	R	1	ICP	9/18/2001	11:37
Chromium	267.72	0.032	0.74	J 192	R*	1	ICP	9/18/2001	11:37
Lead	220.35	0.25	0.53	J 756	R*	1	ICP	9/18/2001	11:37
Selenium	196.03	0.49	1.1	J 22.1	R*	1	ICP	9/18/2001	11:37
Silver	328.07	0.19	0.74	J 2.7	R*	1	ICP	9/18/2001	11:37

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573980 Client ID: S7  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.05 Volume: 100 Percent Moisture: 49.860724

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.76	0.95	J 53.4	R*	1	ICP	9/18/2001	11:43
Barium	233.53	0.33	0.76	J 868	R*	1	ICP	9/18/2001	11:43
Cadmium	226.50	0.048	0.95	J 385	R	1	ICP	9/18/2001	11:43
Chromium	267.72	0.057	1.3	J 302	R*	1	ICP	9/18/2001	11:43
Lead	220.35	0.44	0.95	J 3320	R*	1	ICP	9/18/2001	11:43
Selenium	196.03	0.88	1.9	J 23.7	R*	1	ICP	9/18/2001	11:43
Silver	328.07	0.34	1.3	J 8.7	R*	1	ICP	9/18/2001	11:43

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Comments: \_\_\_\_\_



**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574004 Client ID: S8  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.03 Volume: 100 Percent Moisture: 15.745856

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.46	0.58	J 3.9	R*	1	ICP	9/18/2001	11:49
Barium	233.53	0.20	0.46	J 157	R*	1	ICP	9/18/2001	11:49
Cadmium	226.50	0.029	0.58	J 12.3	R	1	ICP	9/18/2001	11:49
Chromium	267.72	0.035	0.81	J 148	R*	1	ICP	9/18/2001	11:49
Lead	220.35	0.27	0.58	J 453	R*	1	ICP	9/18/2001	11:49
Selenium	196.03	0.53	1.2	J 7.8	R*	1	ICP	9/18/2001	11:49
Silver	328.07	0.21	0.81	J 7.3	R*	1	ICP	9/18/2001	11:49

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
Metals Data Reporting Form

Sample Results

Lab Sample ID: 604574020 Client ID: S9  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109506  
Weight: 1.06 Volume: 100 Percent Moisture: 18.408437

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.47	0.58	3 35.4	R*	1	ICP	9/18/2001	11:56
Barium	233.53	0.20	0.46	3 9240	R*	1	ICP	9/18/2001	11:56
Cadmium	226.50	0.029	0.58	3 22.2	R	1	ICP	9/18/2001	11:56
Chromium	267.72	0.035	0.81	3 687	R*	1	ICP	9/18/2001	11:56
Lead	220.35	0.27	0.58	3 11000	R*	1	ICP	9/18/2001	11:56
Selenium	196.03	0.53	1.2	3 9.9	R*	1	ICP	9/18/2001	11:56
Silver	328.07	0.21	0.81	3 1.9	R*	1	ICP	9/18/2001	11:56

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6 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
Metals Data Reporting Form

Sample Results

Lab Sample ID: 604574046 Client ID: S10  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.03 Volume: 100 Percent Moisture: 19.348659

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.48	0.60	J 35.6	RE*	1	ICP	9/18/2001	12:43
Barium	233.53	0.21	0.48	J 572	RE*	1	ICP	9/18/2001	12:43
Cadmium	226.50	0.030	0.60	J 112	RE	1	ICP	9/18/2001	12:43
Chromium	267.72	0.036	0.84	J 365	RE*	1	ICP	9/18/2001	12:43
Lead	220.35	0.28	0.60	J 1330	RE	1	ICP	9/18/2001	12:43
Selenium	196.03	0.56	1.2	J 18.3	R*	1	ICP	9/18/2001	12:43
Silver	328.07	0.22	0.84	J 3.1	R	1	ICP	9/18/2001	12:43

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6 Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574061 Client ID: S11  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.04 Volume: 100 Percent Moisture: 12.030799

Element	WL/ Mass	MDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.44	0.55	3 16.7	RE*	1	ICP	9/18/2001	13:02
Barium	233.53	0.19	0.44	3 191	RE*	1	ICP	9/18/2001	13:02
Cadmium	226.50	0.027	0.55	3 21.5	RE	1	ICP	9/18/2001	13:02
Chromium	267.72	0.033	0.77	3 176	RE*	1	ICP	9/18/2001	13:02
Lead	220.35	0.25	0.55	3 467	RE	1	ICP	9/18/2001	13:02
Selenium	196.03	0.51	1.1	3 14.4	R*	1	ICP	9/18/2001	13:02
Silver	328.07	0.20	0.77	3 1.5	R	1	ICP	9/18/2001	13:02

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6 Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
Metals Data Reporting Form

Sample Results

Lab Sample ID: 604574087 Client ID: S12  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.04 Volume: 100 Percent Moisture: 6.617647

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.41	0.52	J 15.0	RE*	1	ICP	9/18/2001	13:09
Barium	233.53	0.18	0.41	J 335	RE*	1	ICP	9/18/2001	13:09
Cadmium	226.50	0.026	0.52	J 44.4	RE	1	ICP	9/18/2001	13:09
Chromium	267.72	0.031	0.72	J 199	RE*	1	ICP	9/18/2001	13:09
Lead	220.35	0.24	0.52	J 800	RE	1	ICP	9/18/2001	13:09
Selenium	196.03	0.48	1.0	J 17.0	R*	1	ICP	9/18/2001	13:09
Silver	328.07	0.19	0.72	J 1.9	R	1	ICP	9/18/2001	13:09

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6 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574103 Client ID: S13  
 Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
 Weight: 1.05 Volume: 100 Percent Moisture: 8.61386138

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.42	0.52	J 16.0	RE*	1	ICP	9/18/2001	13:15
Barium	233.53	0.18	0.42	J 391	RE*	1	ICP	9/18/2001	13:15
Cadmium	226.50	0.026	0.52	J 70.6	RE	1	ICP	9/18/2001	13:15
Chromium	267.72	0.031	0.73	J 190	RE*	1	ICP	9/18/2001	13:15
Lead	220.35	0.24	0.52	J 897	RE	1	ICP	9/18/2001	13:15
Selenium	196.03	0.48	1.0	J 16.2	R*	1	ICP	9/18/2001	13:15
Silver	328.07	0.19	0.73	J 2.2	R	1	ICP	9/18/2001	13:15

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574129 Client ID: S14  
 Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
 Weight: 1.05 Volume: 100 Percent Moisture: 15.4608523

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.45	0.56	J 16.1	RE*	1	ICP	9/18/2001	13:21
Barium	233.53	0.20	0.45	J 397	RE*	1	ICP	9/18/2001	13:21
Cadmium	226.50	0.028	0.56	J 254	RE	1	ICP	9/18/2001	13:21
Chromium	267.72	0.034	0.79	J 121	RE*	1	ICP	9/18/2001	13:21
Lead	220.35	0.26	0.56	J 1240	RE	1	ICP	9/18/2001	13:21
Selenium	196.03	0.52	1.1	J 10.5	R*	1	ICP	9/18/2001	13:21
Silver	328.07	0.20	0.79	J 2.4	R	1	ICP	9/18/2001	13:21

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C Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574145 Client ID: S15  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.06 Volume: 100 Percent Moisture: 18.0376610

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.46	0.58	J 12.8	RE*	1	ICP	9/18/2001	13:27
Barium	233.53	0.20	0.46	J 285	RE*	1	ICP	9/18/2001	13:27
Cadmium	226.50	0.029	0.58	J 12.1	RE	1	ICP	9/18/2001	13:27
Chromium	267.72	0.035	0.81	J 70.7	RE*	1	ICP	9/18/2001	13:27
Lead	220.35	0.27	0.58	J 656	RE	1	ICP	9/18/2001	13:27
Selenium	196.03	0.53	1.2	J 18.1	R*	1	ICP	9/18/2001	13:27
Silver	328.07	0.21	0.81	J 0.98	R	1	ICP	9/18/2001	13:27

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C Dec 01

Comments: \_\_\_\_\_



**Pace Analytical Services**  
Metals Data Reporting Form

Sample Results

Lab Sample ID: 604574160 Client ID: S16  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.03 Volume: 100 Percent Moisture: 6.91287878

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.42	0.52	10.0	RE*	1	ICP	9/18/2001	16:34
Barium	233.53	0.18	0.42	318	RE*	1	ICP	9/18/2001	16:34
Cadmium	226.50	0.026	0.52	73.8	RE	1	ICP	9/18/2001	16:34
Chromium	267.72	0.031	0.73	5250	RE*	1	ICP	9/18/2001	16:34
Lead	220.35	0.24	0.52	1130	RE	1	ICP	9/18/2001	16:34
Selenium	196.03	0.48	1.0	28.3	R*	1	ICP	9/18/2001	16:34
Silver	328.07	0.19	0.73	3.3	R	1	ICP	9/18/2001	16:34

HVE  
C Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574160 Client ID: S16  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.03 Volume: 100 Percent Moisture: 6.91287878

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Chromium	267.72	3.1	73.0	5680	J	100	ICP	9/18/2001	18:01

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
Metals Data Reporting Form

**Sample Results**

Lab Sample ID: 604574186 Client ID: S17  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.04 Volume: 100 Percent Moisture: 13.1578947

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.45	0.55	J 12.9	RE*	1	ICP	9/18/2001	16:41
Barium	233.53	0.20	0.44	J 161	RE*	1	ICP	9/18/2001	16:41
Cadmium	226.50	0.028	0.55	J 57.1	RE	1	ICP	9/18/2001	16:41
Chromium	267.72	0.033	0.78	J 425	RE*	1	ICP	9/18/2001	16:41
Lead	220.35	0.26	0.55	J 6000	RE	1	ICP	9/18/2001	16:41
Selenium	196.03	0.51	1.1	J 23.9	R*	1	ICP	9/18/2001	16:41
Silver	328.07	0.20	0.78	J 3.7	R	1	ICP	9/18/2001	16:41

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6 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574244 Client ID: S18  
 Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
 Weight: 1.02 Volume: 100 Percent Moisture: 18.1818181

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.48	0.60	J 21.6	RE*	1	ICP	9/18/2001	16:59
Barium	233.53	0.21	0.48	J 308	RE*	1	ICP	9/18/2001	16:59
Cadmium	226.50	0.030	0.60	J 43.7	RE	1	ICP	9/18/2001	16:59
Chromium	267.72	0.036	0.84	J 1320	RE*	1	ICP	9/18/2001	16:59
Lead	220.35	0.28	0.60	J 862	RE	1	ICP	9/18/2001	16:59
Selenium	196.03	0.55	1.2	J 23.5	R*	1	ICP	9/18/2001	16:59
Silver	328.07	0.22	0.84	J 2.0	R	1	ICP	9/18/2001	16:59

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6 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574269 Client ID: S18D  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.06 Volume: 100 Percent Moisture: 19.0665342

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.47	0.58	J 10.8	RE*	1	ICP	9/18/2001	17:06
Barium	233.53	0.21	0.47	J 215	RE*	1	ICP	9/18/2001	17:06
Cadmium	226.50	0.029	0.58	J 19.2	RE	1	ICP	9/18/2001	17:06
Chromium	267.72	0.035	0.82	J 434	RE*	1	ICP	9/18/2001	17:06
Lead	220.35	0.27	0.58	J 520	RE	1	ICP	9/18/2001	17:06
Selenium	196.03	0.54	1.2	J 13.2	R*	1	ICP	9/18/2001	17:06
Silver	328.07	0.21	0.82	J 1.8	R	1	ICP	9/18/2001	17:06

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574285 Client ID: S19  
Matrix: Soil Units: mg/kg Prep Date: 9/15/2001 Prep Batch: 109507  
Weight: 1.06 Volume: 100 Percent Moisture: 11.1867704

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	0.43	0.53	J 24.4	RE*	1	ICP	9/18/2001	17:12
Barium	233.53	0.19	0.43	J 364	RE*	1	ICP	9/18/2001	17:12
Cadmium	226.50	0.027	0.53	J 63.2	RE	1	ICP	9/18/2001	17:12
Chromium	267.72	0.032	0.74	J 897	RE*	1	ICP	9/18/2001	17:12
Lead	220.35	0.25	0.53	J 1200	RE	1	ICP	9/18/2001	17:12
Selenium	196.03	0.49	1.1	J 26.5	R*	1	ICP	9/18/2001	17:12
Silver	328.07	0.19	0.74	J 1.6	R	1	ICP	9/18/2001	17:12

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573840 Client ID: S1  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 3.927203

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.24	3.6	5.9	R*	20	CVAA	9/18/2001	19:47

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573881 Client ID: S2D  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 26.115859

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.32	4.6	J 11.8	Rf	20	CVAA	9/18/2001	19:49

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent



**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573907 Client ID: S3  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 19.454887

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.29	4.3	5 10.2	B*	20	CVAA	9/18/2001	19:51

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4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573923 Client ID: S4  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 12.346843

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.27	3.9	J 8.7	B*	20	CVAA	9/18/2001	19:53

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4 Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573949 Client ID: S5  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 5.518554

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.25	3.6	3 4.6	H*	20	CVAA	9/18/2001	19:55

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573964 Client ID: S6  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 8.457249

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.26	3.7	J 3.1	BR*	20	CVAA	9/18/2001	19:57

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573980 Client ID: S7  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 49.860724

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.47	6.8	55.3	R	20	CVAA	9/18/2001	19:59

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574004 Client ID: S8  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.2 Volume: 100 Percent Moisture: 15.745856

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.042	0.61	<u>5</u> 0.47	<u>BR*</u>	1	CVAA	9/18/2001	18:24

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574020 Client ID: S9  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 18.408437

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.29	4.2	5 8.2	R*	20	CVAA	9/18/2001	20:06

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574046 Client ID: S10  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 19.348659

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.29	4.2	3 13.9	<del>By</del>	20	CVAA	9/18/2001	20:08

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Comments: \_\_\_\_\_



**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574061 Client ID: S11  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 12.030799

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.27	3.9	5 11.6	B*	20	CVAA	9/18/2001	20:10

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574087 Client ID: S12  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 6.617647

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.25	3.7	5 6.0	R/	20	CVAA	9/18/2001	20:12

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574103 Client ID: S13  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 8.61386138

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.26	3.7	3 9.3	R/	20	CVAA	9/18/2001	20:14

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574129 Client ID: S14  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 15.4608523

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.28	4.1	36.2	Rf	20	CVAA	9/18/2001	20:16

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574145 Client ID: S15  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 18.0376610

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.29	4.2	<u>5</u> 4.1	BR*	20	CVAA	9/18/2001	20:18

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574160 Client ID: S16  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 6.91287878

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.25	3.7	5.6	R*	20	CVAA	9/18/2001	20:20

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

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**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574186 Client ID: S17  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 13.1578947

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.27	3.9	5 22.0	B	20	CVAA	9/18/2001	20:22

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574244 Client ID: S18  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 18.1818181

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.29	4.2	5 16.2	B	20	CVAA	9/18/2001	20:24

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Comments: \_\_\_\_\_



**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574269 Client ID: S18D  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109537  
Weight: 0.6 Volume: 100 Percent Moisture: 19.0665342

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.29	4.2	21.2	B*	20	CVAA	9/18/2001	20:31

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574285 Client ID: S19  
Matrix: Soil Units: mg/kg Prep Date: 9/18/2001 Prep Batch: 109538  
Weight: 0.6 Volume: 100 Percent Moisture: 11.1867704

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.26	3.9	14.1	J	20	CVAA	9/18/2001	20:37

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	19:47
Barium	233.53	1.0	4.0	903	<del>1</del>	1	ICP	9/18/2001	19:47
Cadmium	226.50	0.50	5.0	1100	<del>R</del>	1	ICP	9/18/2001	19:47
Chromium	267.72	1.1	7.0	<del>U</del> 3.0	<del>B</del>	1	ICP	9/18/2001	19:47
Lead	220.35	2.2	5.0	<del>J</del> 458	<del>E</del>	1	ICP	9/18/2001	19:47
Selenium	196.03	8.9	100	<del>U</del> 14.8	<del>B</del>	1	ICP	9/18/2001	19:47
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	19:47

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*Form 1 Equivalent*

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	88.2		1	ICP	9/18/2001	20:07
Barium	233.53	1.0	4.0	1430		1	ICP	9/18/2001	20:07
Cadmium	226.50	0.50	5.0	1790	R	1	ICP	9/18/2001	20:07
Chromium	267.72	1.1	7.0	5.5	B	1	ICP	9/18/2001	20:07
Lead	220.35	2.2	5.0	211	E	1	ICP	9/18/2001	20:07
Selenium	196.03	8.9	100	10.0	B	1	ICP	9/18/2001	20:07
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	20:07

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*Form 1 Equivalent*

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	85.9		1	ICP	9/18/2001	20:14
Barium	233.53	1.0	4.0	1570		1	ICP	9/18/2001	20:14
Cadmium	226.50	0.50	5.0	1880	<del>R</del>	1	ICP	9/18/2001	20:14
Chromium	267.72	1.1	7.0	4.2	<del>B</del>	1	ICP	9/18/2001	20:14
Lead	220.35	2.2	5.0	164	<del>E</del>	1	ICP	9/18/2001	20:14
Selenium	196.03	8.9	100	8.9	U	1	ICP	9/18/2001	20:14
Silver	328.07	1.6	7.0	1.9	<del>B</del>	1	ICP	9/18/2001	20:14

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4 Dec 81

Comments:

U Result is less than the MDL  
B Result is between MDL and PRL

*Form 1 Equivalent*

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573915 Client ID: S3 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/17/2001 Prep Batch: 109546  
Weight: 50 Volume: 50 Percent Moisture: \_\_\_\_\_

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	20:21
Barium	233.53	1.0	4.0	2700		1	ICP	9/18/2001	20:21
Cadmium	226.50	0.50	5.0	3290	<del>X</del>	1	ICP	9/18/2001	20:21
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	20:21
Lead	220.35	2.2	5.0	504	<del>E</del>	1	ICP	9/18/2001	20:21
Selenium	196.03	8.9	100	4 15.0	B	1	ICP	9/18/2001	20:21
Silver	328.07	1.6	7.0	3 3.2	B	1	ICP	9/18/2001	20:21

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Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	20:28
Barium	233.53	1.0	4.0	478		1	ICP	9/18/2001	20:28
Cadmium	226.50	0.50	5.0	909	<del>P</del>	1	ICP	9/18/2001	20:28
Chromium	267.72	1.1	7.0	11.1		1	ICP	9/18/2001	20:28
Lead	220.35	2.2	5.0	706	<del>P</del>	1	ICP	9/18/2001	20:28
Selenium	196.03	8.9	100	8.9	U	1	ICP	9/18/2001	20:28
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	20:28

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
Metals Data Reporting Form

Sample Results

Lab Sample ID: 604573956 Client ID: S5 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/17/2001 Prep Batch: 109546  
Weight: 50 Volume: 50 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	20:46
Barium	233.53	1.0	4.0	226		1	ICP	9/18/2001	20:46
Cadmium	226.50	0.50	5.0	592	<del>X</del>	1	ICP	9/18/2001	20:46
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	20:46
Lead	220.35	2.2	5.0	150	<del>B</del>	1	ICP	9/18/2001	20:46
Selenium	196.03	8.9	100	4 17.7	<del>B</del>	1	ICP	9/18/2001	20:46
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	20:46

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Comments: \_\_\_\_\_



## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	20:53
Barium	233.53	1.0	4.0	188		1	ICP	9/18/2001	20:53
Cadmium	226.50	0.50	5.0	401	<del>B</del>	1	ICP	9/18/2001	20:53
Chromium	267.72	1.1	7.0	4 3.2	<del>B</del>	1	ICP	9/18/2001	20:53
Lead	220.35	2.2	5.0	201	<del>E</del>	1	ICP	9/18/2001	20:53
Selenium	196.03	8.9	100	4 9.8	<del>B</del>	1	ICP	9/18/2001	20:53
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	20:53

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Comments: \_\_\_\_\_

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	20:59
Barium	233.53	1.0	4.0	1050		1	ICP	9/18/2001	20:59
Cadmium	226.50	0.50	5.0	3070	R	1	ICP	9/18/2001	20:59
Chromium	267.72	1.1	7.0	6.3	B	1	ICP	9/18/2001	20:59
Lead	220.35	2.2	5.0	655	E	1	ICP	9/18/2001	20:59
Selenium	196.03	8.9	100	8.9	U	1	ICP	9/18/2001	20:59
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	20:59

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**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574012 Client ID: S8 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/17/2001 Prep Batch: 109546  
Weight: 50 Volume: 50 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	21:05
Barium	233.53	1.0	4.0	4610	<del>U</del>	1	ICP	9/18/2001	21:05
Cadmium	226.50	0.50	5.0	175	<del>U</del>	1	ICP	9/18/2001	21:05
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	21:05
Lead	220.35	2.2	5.0	7450	<del>U</del>	1	ICP	9/18/2001	21:05
Selenium	196.03	8.9	100	u 35.1	B	1	ICP	9/18/2001	21:05
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	21:05

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574038 Client ID: S9 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/17/2001 Prep Batch: 109546  
Weight: 50 Volume: 50 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	21:12
Barium	233.53	1.0	4.0	1390	<del>U</del>	1	ICP	9/18/2001	21:12
Cadmium	226.50	0.50	5.0	432	<del>U</del>	1	ICP	9/18/2001	21:12
Chromium	267.72	1.1	7.0	53.8	<del>U</del>	1	ICP	9/18/2001	21:12
Lead	220.35	2.2	5.0	102000	<del>U</del>	1	ICP	9/18/2001	21:12
Selenium	196.03	8.9	100	8.9	U	1	ICP	9/18/2001	21:12
Silver	328.07	1.6	7.0	<del>U</del> 6.3	<del>U</del>	1	ICP	9/18/2001	21:12

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
Metals Data Reporting Form

## Sample Results

<b>Lab Sample ID:</b>	<u>604574053</u>	<b>Client ID:</b>	<u>S10 TCLP</u>
<b>Matrix:</b>	<u>Water</u>	<b>Units:</b>	<u>ug/L</u>
<b>Weight:</b>	<u>50</u>	<b>Volume:</b>	<u>50</u>
		<b>Prep Date:</b>	<u>9/17/2001</u>
		<b>Prep Batch:</b>	<u>109563</u>
		<b>Percent Moisture:</b>	<u></u>

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/19/2001	17:28
Barium	233.53	1.0	4.0	587		1	ICP	9/19/2001	17:28
Cadmium	226.50	0.50	5.0	264		1	ICP	9/19/2001	17:28
Chromium	267.72	1.1	7.0	4 1.3	<del>B</del>	1	ICP	9/19/2001	17:28
Lead	220.35	2.2	50.0	5 43.9	<del>B</del>	1	ICP	9/19/2001	17:28
Selenium	196.03	8.9	100	8.9	U	1	ICP	9/19/2001	17:28
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/19/2001	17:28

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TCLP Corrected  
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Comments:

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

*Form I Equivalent*

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	21:33
Barium	233.53	1.0	4.0	1460	4	1	ICP	9/18/2001	21:33
Cadmium	226.50	0.50	5.0	447	R	1	ICP	9/18/2001	21:33
Chromium	267.72	1.1	7.0	1.5	B	1	ICP	9/18/2001	21:33
Lead	220.35	2.2	5.0	169	E	1	ICP	9/18/2001	21:33
Selenium	196.03	8.9	100	14.9	B	1	ICP	9/18/2001	21:33
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	21:33

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Comments: \_\_\_\_\_

**Pace Analytical Services**  
Metals Data Reporting Form

## Sample Results

Lab Sample ID: 604574095

**Client ID:** S12 TCLP

Matrix: Water Units: ug/L

**Prep Date:** 9/17/2001      **Prep Batch:** 109563

**Weight:** 50                      **Volume:** 50

**Percent Moisture:** \_\_\_\_\_

Element	WL/ Mass	MDL	Report Limit	Cone	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/19/2001	17:43
Barium	233.53	1.0	4.0	669		1	ICP	9/19/2001	17:43
Cadmium	226.50	0.50	5.0	35.6		1	ICP	9/19/2001	17:43
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/19/2001	17:43
Lead	220.35	2.2	50.0	6.9	B	1	ICP	9/19/2001	17:43
Selenium	196.03	8.9	100	8.9	U	1	ICP	9/19/2001	17:43
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/19/2001	17:43

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Comments:

Version 4.10.3

U Result is less than the MDL

B Result is between MDL and PRL

*Form 1 Equivalent*

**Pace Analytical Services**  
Metals Data Reporting Form

## Sample Results

<b>Lab Sample ID:</b>	<u>604574111</u>	<b>Client ID:</b>	<u>S13 TCLP</u>
<b>Matrix:</b>	<u>Water</u>	<b>Units:</b>	<u>ug/L</u>
<b>Weight:</b>	<u>50</u>	<b>Prep Date:</b>	<u>9/17/2001</u>
<b>Volume:</b>	<u>50</u>	<b>Prep Batch:</b>	<u>109563</u>
		<b>Percent Moisture:</b>	<u></u>

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/19/2001	17:49
Barium	233.53	1.0	4.0	746		1	ICP	9/19/2001	17:49
Cadmium	226.50	0.50	5.0	114	9	1	ICP	9/19/2001	17:49
Chromium	267.72	1.1	7.0	1.6	E	1	ICP	9/19/2001	17:49
Lead	220.35	2.2	50.0	9.3	E	1	ICP	9/19/2001	17:49
Selenium	196.03	8.9	100	15.8	E	1	ICP	9/19/2001	17:49
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/19/2001	17:49

HUE  
C Per Ø

Comments:

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

*Form I Equivalent*



## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	21:40
Barium	233.53	1.0	4.0	1290		1	ICP	9/18/2001	21:40
Cadmium	226.50	0.50	5.0	6880	R	1	ICP	9/18/2001	21:40
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	21:40
Lead	220.35	2.2	5.0	5850	R	1	ICP	9/18/2001	21:40
Selenium	196.03	8.9	100	U 9.3	B	1	ICP	9/18/2001	21:40
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	21:40

WJE  
4 Dec 01

15

**Pace Analytical Services**  
Metals Data Reporting Form

Sample Results

Lab Sample ID: 604574152 Client ID: S15 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/17/2001 Prep Batch: 109546  
Weight: 50 Volume: 50 Percent Moisture: \_\_\_\_\_

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	21:46
Barium	233.53	1.0	4.0	4100	<del>B</del>	1	ICP	9/18/2001	21:46
Cadmium	226.50	0.50	5.0	158	<del>B</del>	1	ICP	9/18/2001	21:46
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	21:46
Lead	220.35	2.2	5.0	2470	<del>B</del>	1	ICP	9/18/2001	21:46
Selenium	196.03	8.9	100	u 17.1	<del>B</del>	1	ICP	9/18/2001	21:46
Silver	328.07	1.6	7.0	J 3.8	<del>B</del>	1	ICP	9/18/2001	21:46

HUE  
4 Dec 01

Comments: \_\_\_\_\_

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	22:04
Barium	233.53	1.0	4.0	539	Q	1	ICP	9/18/2001	22:04
Cadmium	226.50	0.50	5.0	196	R	1	ICP	9/18/2001	22:04
Chromium	267.72	1.1	7.0	u 3.7	B	1	ICP	9/18/2001	22:04
Lead	220.35	2.2	5.0	293	E	1	ICP	9/18/2001	22:04
Selenium	196.03	8.9	100	u 14.1	B	1	ICP	9/18/2001	22:04
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	22:04

4 Dec 81

**Comments:**

U Result is less than the MDL  
B Result is between MDL and PRL

*Form 1 Equivalent*

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	22:11
Barium	233.53	1.0	4.0	1030		1	ICP	9/18/2001	22:11
Cadmium	226.50	0.50	5.0	3300	<del>R</del>	1	ICP	9/18/2001	22:11
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	22:11
Lead	220.35	2.2	5.0	145000	<del>R</del>	1	ICP	9/18/2001	22:11
Selenium	196.03	8.9	100	8.9	U	1	ICP	9/18/2001	22:11
Silver	328.07	1.6	7.0	6.8	<del>R</del>	1	ICP	9/18/2001	22:11

HVE  
4 Per Ø1

Comments: \_\_\_\_\_

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	22:18
Barium	233.53	1.0	4.0	1890		1	ICP	9/18/2001	22:18
Cadmium	226.50	0.50	5.0	574	<del>X</del>	1	ICP	9/18/2001	22:18
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	22:18
Lead	220.35	2.2	5.0	652	<del>E</del>	1	ICP	9/18/2001	22:18
Selenium	196.03	8.9	100	u 10.5	<del>B</del>	1	ICP	9/18/2001	22:18
Silver	328.07	1.6	7.0	u 2.4	<del>B</del>	1	ICP	9/18/2001	22:18

WJG  
4 Dec 01

19

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574277 Client ID: S18D TCLP  
Matrix: Water Units: ug/L Prep Date: 9/17/2001 Prep Batch: 109546  
Weight: 50 Volume: 50 Percent Moisture: \_\_\_\_\_

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	22:25
Barium	233.53	1.0	4.0	1740		1	ICP	9/18/2001	22:25
Cadmium	226.50	0.50	5.0	540	<del>X</del>	1	ICP	9/18/2001	22:25
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	22:25
Lead	220.35	2.2	5.0	230	<del>E</del>	1	ICP	9/18/2001	22:25
Selenium	196.03	8.9	100	u 15.7	B	1	ICP	9/18/2001	22:25
Silver	328.07	1.6	7.0	J 1.9	B	1	ICP	9/18/2001	22:25

HVE  
4 Per 81

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574293 Client ID: S19 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/17/2001 Prep Batch: 109546  
Weight: 50 Volume: 50 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	193.7	3.0	85.0	3.0	U	1	ICP	9/18/2001	22:31
Barium	233.53	1.0	4.0	3070		1	ICP	9/18/2001	22:31
Cadmium	226.50	0.50	5.0	766	<del>X</del>	1	ICP	9/18/2001	22:31
Chromium	267.72	1.1	7.0	1.1	U	1	ICP	9/18/2001	22:31
Lead	220.35	2.2	5.0	589	<del>B</del>	1	ICP	9/18/2001	22:31
Selenium	196.03	8.9	100	4 15.1	<del>B</del>	1	ICP	9/18/2001	22:31
Silver	328.07	1.6	7.0	1.6	U	1	ICP	9/18/2001	22:31

HUB  
4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573857 Client ID: S1 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.34	↓	1	CVAA	9/18/2001	10:26

HUG  
4 Dec 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent



**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604573873 Client ID: S2 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	O	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	4 0.38	B	1	CVAA	9/18/2001	10:28

HUG  
4 Da 01

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form 1 Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573899 Client ID: S2D TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.39	B	1	CVAA	9/18/2001	10:30

HVE  
4 Dec 01

Comments: \_\_\_\_\_

### Sample Results

**Percent Moisture:** \_\_\_\_\_

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	0.29	1	1	CVAA	9/18/2001	10:32

HVB  
4 per 41

*Form 1 Equivalent*

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573931 Client ID: S4 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.49	B	1	CVAA	9/18/2001	10:34

HUG  
4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573956 Client ID: S5 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	4 0.32	B	1	CVAA	9/18/2001	10:36

HUE  
4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604573972 Client ID: S6 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.41	B	1	CVAA	9/18/2001	10:43

HV  
4 Dec 01

Comments: \_\_\_\_\_

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	0.63	1	1	CVAA	9/18/2001	10:45

4 Dec 01

**Comments:**

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	0.27	1	1	CVAA	9/18/2001	10:47

HVG  
4 Dec 91

Comments: \_\_\_\_\_



**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574038 Client ID: S9 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.31	B	1	CVAA	9/18/2001	10:49

HUG  
4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574053 Client ID: S10 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109552  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.55	B	1	CVAA	9/18/2001	11:20

HVE  
4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574079 Client ID: S11 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.27	B	1	CVAA	9/18/2001	10:51

H JE  
4 Dec 91

Comments: \_\_\_\_\_

Version 4.10.3

U Result is less than the MDL  
B Result is between MDL and PRL

Form I Equivalent

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574095 Client ID: S12 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109552  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.26	<del>B</del>	1	CVAA	9/18/2001	11:22

HUE  
4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574111 Client ID: S13 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109552  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.28	B	1	CVAA	9/18/2001	11:24

HUE  
4 Dec 01

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574137 Client ID: S14 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.32	B	1	CVAA	9/18/2001	10:53

HV  
4 Per 91

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

Sample Results

Lab Sample ID: 604574152 Client ID: S15 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.29	↓	1	CVAA	9/18/2001	10:55

HVE  
4 Da φ1

Comments: \_\_\_\_\_

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574178 Client ID: S16 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:           

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.33	<del>B</del>	1	CVAA	9/18/2001	10:57

HUF  
4 Da 9/1

Comments: \_\_\_\_\_



## Sample Results

**Client ID:** S17 TCLP

**Prep Date:** 9/18/2001      **Prep Batch:** 109548

**Percent Moisture:** \_\_\_\_\_

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	0.30	1	1	CVAA	9/18/2001	10:59

HVB  
4 Dec 81

Comments: \_\_\_\_\_

### Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	u 0.27	B	1	CVAA	9/18/2001	11:01

HUE  
4 per 1/

13

## Sample Results

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	0.44	1	1	CVAA	9/18/2001	11:07

HUG  
4 Dec 8

20

**Pace Analytical Services**  
**Metals Data Reporting Form**

**Sample Results**

Lab Sample ID: 604574293 Client ID: S19 TCLP  
Matrix: Water Units: ug/L Prep Date: 9/18/2001 Prep Batch: 109548  
Weight: 10 Volume: 30 Percent Moisture:

Element	WL/ Mass	MDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.063	2.0	U 0.27	B	1	CVAA	9/18/2001	11:09

HUG  
4 Dec 01

Comments: \_\_\_\_\_

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas

Validation Report

for Batch 109510

Queue: WET Wet Chemistry

Sample ID: 604575209/DUP From QC Batch 109510

Sample Type: Duplicate

Proc: 9045 pH, in Soil by EPA 9045

Run: 09/16/01

Sample Comment: N

Inst DF: 1

Analyst: JLC Jeff Covault

Hold: 09/12/01 17:00

Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	RPD Max	Reg. Limit
pH		8.16			8.16			1			2	

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed

Sample ID: 604573840/S1

Sample Type: Paying Sample

Comments: SDG 6052563, LEVEL D PKG.

Proc: 9045 pH, in Soil by EPA 9045

Run: 09/16/01

Sample Comment: Y

Inst DF: 1

Analyst: JLC Jeff Covault

Hold: 09/12/01 17:00

Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	RPD Max	Reg. Limit
pH		8.34			8.34			1				

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed

Sample ID: 604573865/S2

Sample Type: Paying Sample

Comments: SDG 6052563, LEVEL D PKG.

Proc: 9045 pH, in Soil by EPA 9045

Run: 09/16/01

Sample Comment: Y

Inst DF: 1

Analyst: JLC Jeff Covault

Hold: 09/12/01 17:00

Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	RPD Max	Reg. Limit
pH								1				

COMMENT: Sample was used up before pH could be run.

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas  
Validation Report  
for Batch 109510  
Queue: WET Wet Chemistry

Sample ID: 604573865/S2  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.

Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
(Continued)											
1 compounds listed											0 reportable surrogates listed

Sample ID: 604573881/S2D  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.

Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563

Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		7.52			7.52						
1 compounds listed											0 reportable surrogates listed

Sample ID: 604573907/S3  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.

Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563

Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		8.38			8.38						
1 compounds listed											0 reportable surrogates listed

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas

Validation Report  
for Batch 109510

Queue: WET Wet Chemistry

Sample ID: 604573923/S4  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		7.27			7.27			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

Sample ID: 604573949/S5  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		7.08			7.08			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas  
Validation Report  
for Batch 109510  
Queue: WET Wet Chemistry

Sample ID: 604573964/S6  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01

Sample Comment: Y

Client: TETRA TECH EMI  
Project Number: 6052563

Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		6.84			6.84			1			

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed

Sample ID: 604573980/S7  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01

Sample Comment: Y

Client: TETRA TECH EMI  
Project Number: 6052563

Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		7.03			7.03			1			

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed



QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas

Validation Report

for Batch 109510

, Queue: WET Wet Chemistry

Sample ID: 604574004/S8  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Client: TETRA TECH EMI  
Project Number: 6052563  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		8.83			8.83			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

Sample ID: 604574020/S9  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/12/01 17:00  
Client: TETRA TECH EMI  
Project Number: 6052563  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		8.24			8.24			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas

Validation Report  
for Batch 109510  
Queue: WET Wet Chemistry

Sample ID: 604574046/S10  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Rec Limits	Reg. Limit
pH		7.36			7.36			1				

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

Sample ID: 604574061/S11  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Rec Limits	Reg. Limit
pH		7.77			7.77			1				

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas

Validation Report  
for Batch 109510  
Queue: WET Wet Chemistry

Sample ID: 604574087/S12  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01

Sample Comment: Y

Client: TETRA TECH EMI  
Project Number: 6052563

Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Compound Name	Adj.	MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	% Rec Limits	Reg. Limit
pH			8.42			8.42							

1

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed

Sample ID: 604574103/S13  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01

Sample Comment: Y

Client: TETRA TECH EMI  
Project Number: 6052563

Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Compound Name	Adj.	MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	% Rec Limits	Reg. Limit
pH			8.29			8.29							

1

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas  
Validation Report  
for Batch 109510  
Queue: WET Wet Chemistry

Sample ID: 604574129/S14  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	Rec Limits	Reg. Limit
pH		8.19									
1 compounds listed											
1 reportable compounds listed											
0 reportable surrogates listed											

Sample ID: 604574145/S15  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	Rec Limits	Reg. Limit
pH		8.04									
1 compounds listed											
1 reportable compounds listed											
0 reportable surrogates listed											

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas  
Validation Report  
for Batch 109510  
Queue: WET Wet Chemistry

Sample ID: 604574160/S16  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		6.72			6.72			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

Sample ID: 604574186/S17  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Client: TETRA TECH EMI  
Project Number: 6052563  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/13/01 17:00  
Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		8.07			8.07			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

QC Batch: 109510  
QC Queue: WET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas

Validation Report  
for Batch 109510

Queue: WET Wet Chemistry

Sample ID: 604574244/S18  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/14/01 17:00  
Hold Exceeded: YES

Client: TETRA TECH EMI  
Project Number: 6052563

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		8.03			8.03			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

Sample ID: 604574269/S180  
Sample Type: Paying Sample  
Comments: SDG 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01  
Sample Comment: Y  
Inst DF: 1  
Analyst: JLC Jeff Covault  
Hold: 09/14/01 17:00  
Hold Exceeded: YES

Client: TETRA TECH EMI  
Project Number: 6052563

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	Reg. Limit
pH		7.99			7.99			1			

1 compounds listed  
1 reportable compounds listed  
0 reportable surrogates listed

\*\*\* END OF REPORT \*\*\*

QC Batch: 109511  
QC Queue: MET Wet Chemistry  
QC Proc: 9045 pH, in Soil by EPA 9045

Kansas  
Validation Report  
for Batch 109511  
Queue: MET Wet Chemistry

Sample ID: 604575217/DUP From QC Batch 109511  
Sample Type: Duplicate  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01

Sample Comment: N  
Inst DF: 1  
Analyst: JLC Jeff Covault

Client: Not Available for QC  
Original Sample Number: 604574285  
Hold: 09/14/01 17:00

Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	% Rec Limits	RPD	RPD Max	Reg. Limit
pH		8.33			8.33			1				1		

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed

Sample ID: 604574285/S19  
Sample Type: Paying Sample  
Comments: SDG, 6052563, LEVEL D PKG.  
Proc: 9045 pH, in Soil by EPA 9045  
Run: 09/16/01

Sample Comment: Y

Inst DF: 1  
Analyst: JLC Jeff Covault

Client: TETRA TECH EMI  
Project Number: 6052563  
Hold: 09/14/01 17:00

Hold Exceeded: YES

Compound Name	Adj. MDL	Posted Result	Posted Units	Report Limit	Corrected Result	Report Units	Over Limit	Dilution Factor	Spike Conc	% Rec	% Rec Limits	RPD	RPD Max	Reg. Limit
pH		8.38			8.38			1						

1 compounds listed

1 reportable compounds listed

0 reportable surrogates listed

\*\*\* END OF REPORT \*\*\*

09/16/01 17:18

\* indicates a QC recovery or RPD outside of the control limits; \*\* same with no footnote

**APPENDIX C**  
**LIST OF WITNESSES**  
(One Page)



## LIST OF WITNESSES

Kevin Turner  
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